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MARCH, 1946

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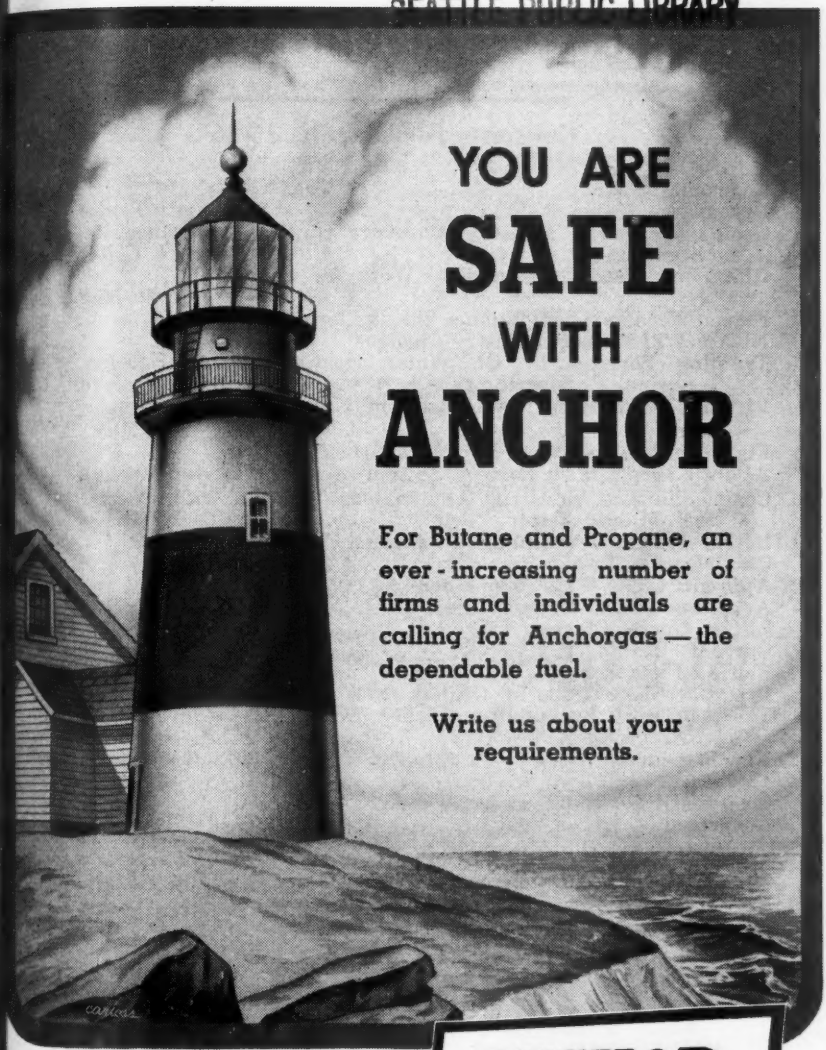

BUTANE-PROPANE *News*

Reg. U.S. Pat. Off.

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ELLIOTT TAYLOR, Editorial Director
52 Vanderbilt Ave., New York (17), N. Y. Phone: MURray Hill 2-4504

Publication Office

LOS ANGELES (14)—1709 W. Eighth St.
Phone: DRexel 4337

Branch Offices

CHICAGO (3)—1064 Peoples Gas Bldg.
Phone: WABash 2589
DAVID CARMAN, Manager

NEW YORK (17)—50 East 42nd Street
Phone: MURray Hill 2-4504
L. V. HOHL, Manager

Editorial

LYNN C. DENNY, Editor
PAUL LADY, Assistant Editor
H. W. WICKSTROM, Technical Editor

Executive

JAY JENKINS, President and Publisher
ARTHUR ROHMAN, Vice President
JAMES E. JENKINS, Secy.-Treas.

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LETTERS

• Have you service or operating problems? Submit them to us and our technical department will endeavor to help you.—Ed.

•

Gentlemen:

Could you advise us how we could proceed to register new 100-lb. propane gas cylinders?

We would like to buy a quantity of cylinders from an eastern manufacturer, but must first have an ICC marking, we are advised.

Since this is our first attempt at such a purchase, we are not sure of how to go about this proposed registration.

W.H.Co.

Iowa

When cylinders are manufactured they are given an ICC number by the manufacturer. The manufacturer of the cylinders which you propose to buy will handle the registration for you, furnishing you the necessary forms. —Ed.

•

Gentlemen:

This gas business is new to me and there are a couple of questions I'd appreciate your answering specifically, as follows:

Is butane different from propane; if so, what advantages does each have over the other? Will the same equipment handle either gas? Can one be substituted for the other?

Will the use of butane, or propane, for heating in a dry goods store cause any discoloration of clothing?

J.L.P.

South Carolina

Butane and propane are similar but have different physical characteristics. The main ones of interest to the commercial user are the boiling points and the vapor pressures. The boiling point of propane is approximately —44° F. and the boiling point of butane is +32° F. This concerns the BP-Gas dealer if he operates when atmospheric temperatures are low, as the heat to vaporize the liquid is obtained from the surrounding atmosphere.

The vapor pressure is important as it determines the working pressure of the tanks. Tanks for handling propane must have a working pressure of 250 lbs. per sq. in. while butane tanks of 125 lbs. per sq. in. are satisfactory.

The appliances that will burn butane gas satisfactorily can be adjusted to properly burn propane.

Tanks designed to handle propane can be used for butane but butane tanks cannot be used for propane.

There have been some complaints on account of the use of gas burners in clothing stores causing discoloration of certain kinds of fabrics. We believe, however, if an installation is made using vented heaters that no trouble of this type will be occasioned. —Ed.

•

Gentlemen:

In your December issue, on Page 21, I find what I believe is a rather unfair reference to the work being done in behalf of the "New Freedom Gas Kitchen" program. As you know, this program is jointly sponsored by the American Gas Association and the Gas Appliance Manufacturers' Association (formerly AGAEM). Because we represent the manufacturers, who are naturally interested in the development of the liquefied petroleum gas industry, I have been very careful to stress the fact that these kitchens were also being promoted by liquefied gas dealers.

We have worked very closely with distributors of "Philgas," "Pyrofax," "Shellane" and others in providing them with material for publication and for customer distribution.

I recently gave a talk to the home demonstration agents at Rutgers

university in New Jersey, at which time our discussion regarding fuel very appropriately revolved about the theme of liquefied gas for customers beyond the gas mains.

At a recent meeting of the Producers' Council, at which time standards were being considered for kitchen appliances, I found that no representative from the liquefied gas industry had been included on the committee and insisted, in spite of electric industry opposition, that such a representative be named.

These are but a few of the instances where we feel that butane-propane gas has received specific support. We try to talk about gas in general, rather than the type of gas being used, so that all of our literature and other helps will be equally applicable and useful in liquefied, manufactured, natural or mixed gas territories.

Very truly yours,
H. VINTON POTTER,
Director, New Freedom
Gas Kitchen Program.

We have always advocated the use of appliances that burn any kind of gas and have encouraged cooperation between gas utilities and liquefied petroleum gas men where their fields of service meet. Our industry values the advertising and publicity programs of the American Gas Association and these shall have our continued support.—Ed.

•

Gentlemen:

Have you any information available as to what the consumption would be for a hospital which served approximately 175 meals three times per day?

We want to sell them propane.

H.M.W.

Pennsylvania

The load requirements of institutions vary with the extent that they are self-sufficient in their cooking.

Some experience in remotely located institutions in the West indicates a consumption of approximately .1 lb. of fuel per meal, using modern gas stoves and ovens. In your case this would amount to about 50 lbs. per day.

If this institution is now using a competitive fuel, the gas requirement could be determined if you can obtain their present fuel consumption. Give us the name of this fuel and the amount used per day and we will tell you how much B-P Gas would be needed and at what price you would have to sell it to be competitive.—Ed.

•

Gentlemen:

We have been looking for some time for a manufacturer of exterior washing and cleaning equipment for our butane-propane-gas cylinders, without success, however.

We therefore take the liberty to inquire, whether you could recommend us such a manufacturer, as you might have information not available to us.

G. L. M.

Switzerland

The Turco Products, Inc., 135 South Central Ave., Los Angeles, Calif., makes a portable steam cleaning outfit that is gas-fired and has been very satisfactory for the purpose named.—Ed.

•

Gentlemen:

From time to time we have to quote the size of supply tank needed to produce a certain BTU, but don't know for sure the BTU, or cu. ft., of gas that a certain size tank will produce at a maximum of 35° below zero, speaking of supply tank.

Any help you can give us will surely be appreciated. The gas we plan on handling will be propane and not a mixture.

E. G. R.

South Dakota.

The answer to the actual amount of vaporization in tanks is indefinite because there are so many variables involved. Among these are fluctuating atmospheric temperatures and the variation in the amount of liquid in a tank at any given time.

In the May, 1944, issue of BUTANE-PROPANE *News*, an article appeared which gives some actual experiences in different localities. This should be helpful to you.—Ed.

Gentlemen:

Do any of your advertisers carry a burner that will burn butane gas in a light range? I have a lightly-built range in which coal is used but would like to change it to butane gas.

M. H. W.

Missouri

It would not be very practical for you to try to convert a light, domestic coal range to burn butane gas. Even an oil conversion is difficult in a range like this because of the difference in the requirements of the combustion chamber.

If you will try to get in touch with some liquefied petroleum gas dealer in the vicinity of your home town, you may be able to pick up a new or second hand butane burning range that will serve your purposes much better.—Ed.

●

Gentlemen:

The phase of the liquefied petroleum business that appeals to me, is the distribution of it from mains, supplied from a central plant. There are a number of towns in this vicinity where 200 to 500 customers could be secured.

There are such systems in existence using undiluted gas, and I am seeking information on the cost of their operation as compared with the distribution by bottles. There are so many people who would use this gas, if they did not have to invest in a tank, because they do not own their homes, or do not want to make the investment.

A distribution system of this sort would run into real money, and the services of a competent engineering firm would eventually be needed. Please give me what information you can on this subject.

P.T.L.

Mississippi

In locations where 300 to 500 meters can be installed over a period of five years, a central plant and piped distribution system is definitely a good investment and if the original capital investment is kept down gas can be delivered this way cheaper than handling in containers.

A combination set-up for small towns is ideal, with piped service and meters in the closely populated area, and the outlying districts served with containers. Extensions can be made to the piped distribution system as the concentration of the bottled gas increases and justifies the extension of mains into a district.

Piped systems are covered by franchise and the earnings and rates are regulated by the utility commission and are considered conservative investments.

In establishing one or more central distribution systems you would probably find it greatly to your advantage to employ the services of an experienced engineer, for one familiar with such plants could serve you far more than his fee.—Ed.

●

Gentlemen:

Will you please furnish me the names of casualty companies that will write Products Liability Insurance for B-P Gas distributors?

R.F.H.

North Carolina

The Liquefied Petroleum Gas Insurance Underwriters, 1913 Tauromee, Kansas City, Kans., has recently been formed to write BP-Gas coverage exclusively. See article in this issue, Page 19.—Ed.

●

Gentlemen:

I am interested in knowing what material and information you have available on butane and propane gas heating for homes.

E. R. S.

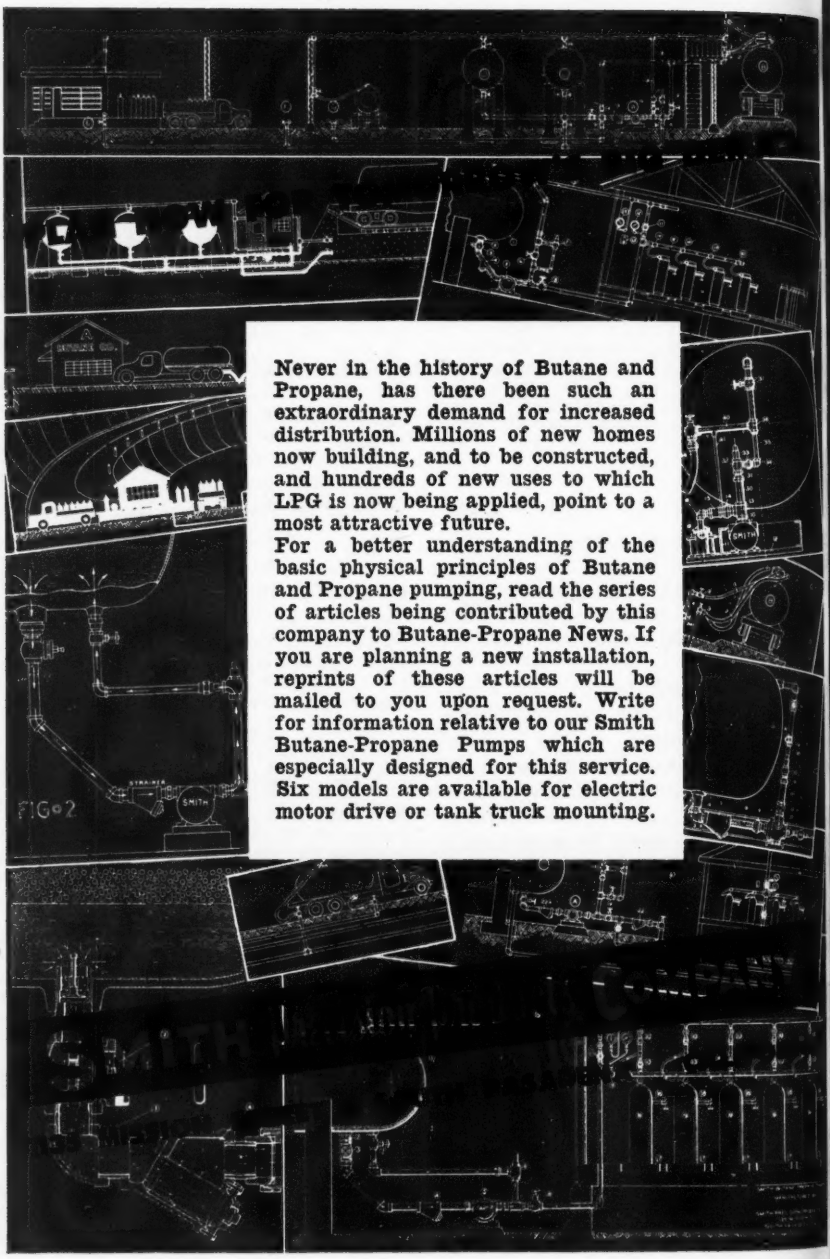
Iowa

In "The Bottled Gas Manual" by C. C. Turner, published by us, is an entire chapter devoted to space heating and if you do not have this book I think it may be worth your while to obtain a copy.

The Bottled Gas Manual appeared serially in BUTANE-PROPANE *News* and should you have back copies of our magazine you will find that the chapters on space heating appeared in the issues of January, February, and March, 1944. —Ed.

●

● **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**



Never in the history of Butane and Propane, has there been such an extraordinary demand for increased distribution. Millions of new homes now building, and to be constructed, and hundreds of new uses to which LPG is now being applied, point to a most attractive future.

For a better understanding of the basic physical principles of Butane and Propane pumping, read the series of articles being contributed by this company to Butane-Propane News. If you are planning a new installation, reprints of these articles will be mailed to you upon request. Write for information relative to our Smith Butane-Propane Pumps which are especially designed for this service. Six models are available for electric motor drive or tank truck mounting.

COMMENT

Insurance

AT last a company has been organized specially to give the B-P Gas industry complete insurance coverage. It's about time. (See Page 19.)

While many companies are looking for excuses to deny insurance to dealers, this concern has surveyed the field, found it a creditable risk, and invites new business.

Our industry has a much better accident record than the gasoline or kerosene industries, and immeasurably better than electricity, but its comparatively few accidents have been unduly publicized because they were spectacular.

Load Balancer

One engine manufacturer — the Hall-Scott Motor Car Co., Berkeley, Calif.—states that it will deliver more than 500 butane-burning engines in 1946 for heavy duty trucks.

We have seen some of these units on the road and 600 to 700 miles per day is their style, hauling 72,000-lb. loads.

Will they use fuel! At least 75,000 gals. per day. That makes 26,000,000 gals. a year of balanced load.

Yet, some dealers are giving no thought to this branch of the industry.

Cooperation or Competition?

B-P Gas associations are swinging into a peace-time stride with new personnel and planned meetings. There is work to be done and they aim to do it.

The LPGA has appointed a new executive vice president to work out the goals of a revamped constitution, opened a Chicago office.

The NB-PA has elected a new president and will schedule many sectional meetings for this year.

Dealers are going to get action—and chances to "join up."

Pump Problems

No article appears in this issue under the heading of "Pump Problems," conducted by R. Stanley Smith. Last month's article began a series covering tank truck installations, and only briefly covered one of many possible variations to be illustrated in the coming issues.

Watch for the second chapter next month.

Kerosene Up

A temporary increase of ¾ cents per gallon has been allowed by the OPA for kerosene and heating oils in Washington, Oregon, California and Arizona, to extend through June 30.

Object: To increase supply. Possible result: More butane and propane installations!

Two Goals Now

Now safety has a bedfellow. Heretofore, safety was sort of an industry keynote—the one great goal.

It still comes first, but a balanced load is the next most important objective for dealers.

Balanced load means smooth, uniform, profitable operation. It keeps the works oiled all year round.

By Ed.

now-it can be SOLD!

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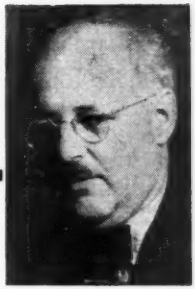
Beyond the Mains



By ELLIOTT TAYLOR

Short Supplies

The supply situation in appliances and equipment continues to be the No. 1 hurdle in the path of liquefied gas industry expansion as of the first of this current, raw month of March. If the settling of the steel strike means what many optimists predict--the termination of major labor wars for a few months at least—then the outlook for the liquefied gas industry becomes progressively better as we look into the future.

The two greatest bottlenecks in butane-propane appliances and equipment have been gas ranges and gas regulators, and on these expansion depends. While it is true that an installation can be made without selling a gas range, the proportion of new jobs put in on this basis is small; most customers want to start cooking with gas as soon as the gas is delivered, or they don't want it delivered at all.

Estimates in the stove industry are that anywhere from 200,000 to half a million liquefied gas ranges will be delivered during 1946. That means that manufacturers expect to be able to turn out at least as many units as they did in 1941, when approximately 210,000 butane-propane burning stoves were delivered.

In regulators, the present combined output of the principal manufacturers is probably in excess of 50,000 a month, with an early acceleration of this rate to about 80,000 anticipated.

Steel cylinder production which was coming along fairly satisfactorily up to the time of the steel strike, has been set back from a month to six weeks, or perhaps longer, as a result of the disturbance in that industry. It was estimated around the first of the year that propane cylinder production of the 100-pound size containers was up to between 50,000 and 60,000 per month. The 75,000 monthly cylinder output anticipated for the beginning of the second quarter will not materialize, we are informed, before some time closer to summer.

Cylinder valves have been available in quantities at least equal to and generally in excess of the number of cylinders requiring them. It probably would not tax the manufacturers of this item of equipment to turn out 90,000 or more valves per month during the balance of the current year, if cylinder and tank requirements should demand it.

We are convinced that all manufacturers are making super-human efforts to meet the insistent and clamorous demands of the liquefied gas industry. With labor troubles to devil them, with inadequate price ceilings to hamper them in their efforts to grant even reasonable wage demands, and with the patent uncertainties of government policies to further confound them, it is to the credit of American manufacturers that industry itself has not gone on a production strike.

Within their own ranks, there is still opportunity for liquefied gas operators to cooperate with each other for the long pull advantage of themselves and the industry. Unbalanced inventories should be levelled off between dealers, even if the barter method of exchange has to be resorted to. Distributors and bulk operators should take the responsibility of seeing that no favored dealers get the chance to hog all of one type of equipment, holding it in dead storage while waiting for some other essential items to be delivered. Priority of orders is no valid criterion under present conditions. If the distributor is able to find out through personal investigation which dealers' needs are greatest, those needs should be first met.

We are of the opinion that, even before the end of summer, materials and merchandise will be available in quantities to make 1946 a satisfactory if not an outstanding year for the industry; and the essential optimism with which liquefied gas men have always regarded their future need not be dimmed by the current crisis.

Load Snatchers

One of the biggest obstacles to the harmonious inter-industry cooperation that should prevail between liquefied gas and the town gas utilities must, in all fairness, be laid at the door of some butane and propane dealers. They are in the minority, to be sure, but there have been, and are right now, instances where dealers have embarked on deliberate campaigns to raid the gas utilities of their connected customers, changing them over to liquefied gas on the basis of price alone.

These stories get around and probably grow as they travel, so it is small wonder that by the time they have all been talked over, the manufactured gas companies are more firmly resolved

than ever that there will be no advertising cooperation with the propane pirates if they can help it.

It is true that a manufactured gas company should be able to produce gas at a price that would discourage such competition; and as a matter of fact, many of them are changing from coal gas to butane-air or straight propane vapor systems because they can thus make gas cheaper.

But where distressed liquefied gas is being dumped on a market, as is sometimes the case, no utility in the world could hope to meet the upset price with comparable firm rates on a continuous basis.

From the liquefied gas dealer's standpoint, however, does it make much sense for him to go after this business at the expense of antagonizing, and even inviting, reprisals on the part of the gas utility? Our answer is No!

Is there any money to be made on the sales of appliances in such raiding operations? Very seldom. Since the load added is almost always some established business, like small commercial cooking installations, for instance, the appliances are already in place and connected, and at the most a minor adjustment of burners will convert them from one type of gas to the other.

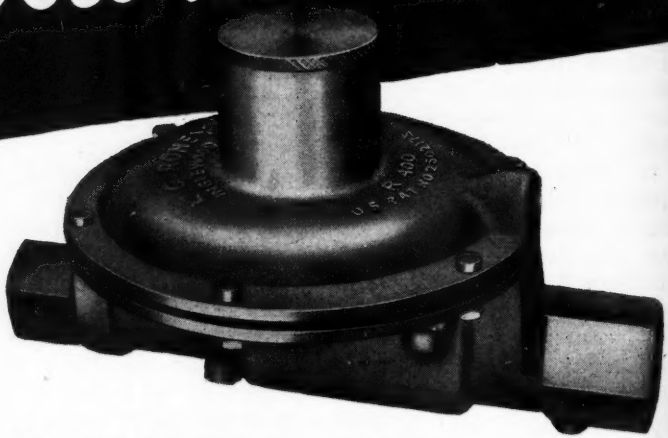
Is the new load likely to be profitable? That, of course, requires an answer in each individual case, but as a general principle it is highly improbable that any dealer is going to be able to profitably compete with a regulated utility, where the rate of return on investment and even the prices to be charged for gas are fixed low by law. Once such new liquefied gas load is added at low prices, the obligation to continue to serve remains, even if supply conditions become such that the low price is no longer profitable.

It is worth remembering, too, that if at any time the sale of butane-propane along its lines becomes too much of a nuisance to the manufactured gas company, it can resolve the problem in a hurry by going into that business itself.

Many gas companies now feel that they missed the boat in not going into liquefied gas distribution as an auxiliary to the distribution of manufactured gas. As a means of safeguarding the future sales of gas in areas of new residential building beyond the existing city mains, it is the best insurance possible. Bottled gas in scattered homes, to be succeeded by piped gas as the density of population increases, is a program that is still seriously entertained by many utilities.

The presence of an energetic local public utility in or near a liquefied gas operation is more likely to be a stimulant to all gas and gas appliance sales than it is to be an element of undesirable competition.

A Roney R-400 Does ALL the JOBS



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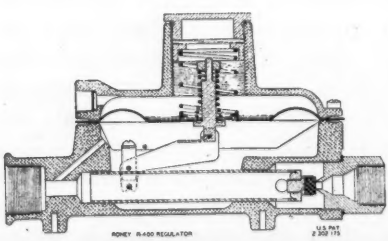

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L.C. RONEY INC.

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Company Offering B-P Gas Coverage Outlines Insurance Requirements

By LOUIS H. COLLAR

Manager, Liquefied Petroleum Gas Underwriters, Kansas City, Kansas

THE PAST has not held many prospects for a dealer in liquefied petroleum gas to obtain adequate insurance coverage. The dealer has been able to secure, at times, and in piece-meal fashion, Automotive Public Liability and Property Damage coverage, Products Liability and Manufacturers and Contractors Liability and Compensation. However, there has been no consistent program on the part of insurance companies to offer complete coverage to each and every dealer.

Present coverage has been inadequate. For example, Automotive coverage has been afforded by several companies, but the general practice has been to exclude bodily injury and property damage claims, arising out of Fire and Explosion, and/or Fire as result of Explosion. Furthermore, many of the policies will exclude claims arising out of misdelivery.

To go one step further, no company has attempted to give complete Public Liability coverage. Companies will issue a Products policy, or a Manufacturers and Contractors policy, but here again Fire and Explosion, and/or Fire as result of Explosion, is excluded in

For articles in this issue on Safety, see Page 42, "Fighting Small Fires with Carbon Dioxide," and Page 58, "Review Safety Program with Returning Veterans."

WHILE the Liquefied Petroleum Gas Insurance Underwriters, which is an agency, has been organized only a short time, and for the purpose of taking care of the insurance needs of all LP-Gas dealers and distributors, Mr. Collar has been in the insurance business since being discharged from the Army of World War I in 1919.

He has been working on a complete coverage program for the LP-Gas dealers for the past year and finally convinced the insurance company that such coverage could be afforded the LP-Gas industry by writing a complete Comprehensive Public Liability policy covering all the hazards for which the operator, distributor or dealer might be legally liable, or assume under contract, in one policy, with one rating structure, namely, a rate based upon the number of gallons of LP-Gas sold, which is later broken down to pounds.

This, of course, would not include the motor vehicle coverage, or the Workmen's Compensation coverage, as it is excluded under a Comprehensive Public Liability policy. However, this coverage is written in separate policies.

Mr. Collar's agency is in a position to afford complete protection to any and all dealers or distributors of LP-Gas or LP-Gas appliances located anywhere in the United States. However, it must be noted that this agency does not deal through local agents owing to the special hazards involved, and all inquiries must be directed to Mr. Collar, 1913 Tauromee, Kansas City, Kan.—Editor

most cases, and no provision made for protection against all existing liabilities in which the dealer of butane and propane is involved every day of operation. This fact can be better substantiated by a reviewal of the standard form of Products or Manufacturers and Contractors policy by noting the standard insuring agreements, conditions and exclusions.

When we were first approached with the problem of insuring liquefied petroleum gas dealers, we quickly recognized the fact that only the broadest form of insurance policy should be offered so that the dealer would know he has complete protection. In view of the fact that very little coverage has been offered, and that there is practically no experience available on the class, we proceeded to independently work out an underwriting procedure and rating structure for liquefied petroleum gas dealers.

Experience May Change Rates

Because of the innumerable ramifications that could be involved, it was determined that the simplest rating structure was advisable. The rates we have promulgated are lower than national experience indicates should be charged and since this experience is based upon a limited coverage and does not involve sufficient spread of risk, we have attempted a rate schedule and underwriting procedure that would enable the entire industry to be covered by insurance and thus solve the first of insurance problems, namely, an adequate spread to take care of the risk, and if we are successful in underwriting a large volume, our rates should be adequate.

To a very great extent, standardization of rates will, for the most part, depend upon the industry. In other words, how safety minded the industry is, how well it follows prescribed safety rules and to what extent it watches the human element will rates be affected.

The Coverage Needed

What insurance coverage should the dealer, or distributor of liquefied petroleum gas carry in order to have complete coverage against all known and unknown hazards in the operation of his business?

1. Comprehensive Public Liability
2. Automotive Public Liability and Property Damage, including Fire and/or Explosion and Fire as result of Explosion.
3. Workmen's Compensation, Employer's Liability.
4. Bonds as may be required in the different states.
5. Fire, Theft, Tornado and Collision on Automotive Equipment.
6. Fire and extended coverage on buildings and their contents.
7. Life insurance on individual partners and corporation executives.

Hitherto, the great majority of casualty insurance companies have consistently refused to make available to the industry, policies of insurance which would afford adequate and necessary protection against liability arising out of the sale, distribution, installation of appliances and transportation of butane or propane products. Such protection is now being afforded

one of the most reliable non-assessable mutual casualty companies, at rates which should be attractive to the industry and which presently appear to be commensurate with the hazards of the industry as respects to Items 1, 2, 3 and 4.

The Comprehensive General Liability Policy of insurance now available affords the dealer protection against legal liability imposed by law as result of accidents arising out of the sale and distribution of butane and propane products. The policy is so designed as to afford protection for every operation in the industry.

For instance, the bulk dealer should purchase a policy covering the distribution of butane and propane, blending or mixing, including explosion or fire resulting from explosion; installation of stoves, space heaters, gas refrigerators and appliances used in connection therewith; products liability arising out of the use of butane or propane and products liability covering the sale of stoves, space heaters, gas refrigerators and other appliances used in connection with the use of such gases.

Such coverages give the dealer adequate protection against all hazards. The smaller dealer who does not sell or install appliances and who does not maintain and service the equipment used in connection with the use of butane and propane may obtain a policy which adequately protects his particular operations.

Under the Bodily Injury coverage, the company agrees to pay on behalf of the insured, all sums which the insured shall become obligated to pay by reason of the liability imposed upon him by law or assumed by him under contract as defined in the policy for damages, including damages for care and loss of services because of bodily injury, sickness or disease, including death at any time resulting therefrom sustained by any person or persons and caused by accident.

Under the Property Damage coverage, the company agrees to pay on behalf of the insured all sums which the insured shall become obligated to pay by reason of the liability imposed upon him by law or assumed by him under contract as defined in the policy for damages because of injury to or destruction of property, including loss of use thereof caused by accident. The policy contains the usual exclusions which appear in a liability policy, such as: Liability for Operation of Motor Vehicles and Liability Under Workmen's Compensation Laws.

Rates Based on Sales Volume

The Public Liability policies are written upon a gross sales reporting basis, a deposit or advance premium being required and premium is computed by the application of an established rate to the total number of pounds sold. The insured each month reports to the company the total number of pounds sold during the preceding month and the earned premium upon such sales are paid during the month following the one during which such sales were made. Small distributors who do not sell or in-

APPLICATION FOR BUTANE AND PROPANE DEALERS, DISTRIBUTORS, OR INSTALLERS. COMPREHENSIVE LIABILITY FORM INCLUDING FIRE AND EXPLOSION HAZARDS

1. Name.....(Individual, Corporation or Partnership)
2. Address.....in.....County, and State of....., incorporated under the laws of.....(If a Corporation)
3. Territory Operated .....
4. Type of Operation:
   A. Bulk Plant?....., Retail Sales and Distribution?....., Bottled Gas?.....
   Appliances?....., Install Appliances?.....
   B. Do you retain ownership of any appliances?..... Do you service appliances and gas?.....
5. From whom do you purchase:
   A. Liquefied Petroleum Gas?.....
   B. Appliances, such as: Heaters, hot water tanks, refrigerators, safety equipment such as valves, etc.?.....
6. Number of gallons of butane or propane sold last year?.....
7. Do you conform to the standards of the N. B. F. U. Pamphlet No. 58?.....
8. List all Transport Trucks owned and operated by mileage actually covered by each—
   a) Less than 50 miles from principal place of garaging. Tractor, semi-trailer units to be separately listed.

YEAR	MAKE	TYPE	MOTOR NO.	GAL. CAPACITY OF TANK

   b) 51 to 150 miles

YEAR	MAKE	TYPE	MOTOR NO.	GAL. CAPACITY OF TANK

   c) Over 150 miles

YEAR	MAKE	TYPE	MOTOR NO.	GAL. CAPACITY OF TANK

9. Through what States do your transports operate?.....
   With what States must you file insurance policies?.....
10. Of what, if any, butane associations are you a member?.....
11. Do you have a railroad side track?.....
12. Do you enter into contracts with sub-contractors for any work (installation, repair, service or delivery of L. P. G.)?.....
    a) Do you understand that such sub-contractors must provide insurance for their individual operation?.....
13. Have you filed any bonds that may be required by any State? If so, with whom and name of Bonding Company?.....
14. Do you carry Workmen's Compensation and with what company? If not, do you desire coverage?.....
15. Number and types of losses sustained in past three years?.....
16. How long have you been engaged in the handling of butane and propane gas, and equipment?.....
17. State the extent of your experience in the butane and propane business?.....
    A. Transporting butane or propane gas?.....
    B. Installing of butane or propane systems?.....
18. Do you apply protective coating to systems installed by you?.....
19. Has any of your transport equipment been in any accident or wreck? If so, has this unit been retested for service since the accident?.....

APPLICATION FOR BUTANE AND PROPANE DEALERS, DISTRIBUTORS, OR INSTALLERS. COMPREHENSIVE LIABILITY FORM INCLUDING FIRE AND EXPLOSION HAZARDS—Continued.

20. What testing do you use on containers?..... How often.....

21. What training do you require of your employees?.....

22. a) Minimum limits of liability to be provided subject to rates applicable for territory in which applicant resides shall be:

1) Comprehensive Bodily Injury and Property Damage (Including fire and explosion or fire as result of explosion)
Bodily Injury—$10,000 each person; $20,000 each accident.
Property Damage—$5,000 each accident; $25,000 annual aggregate.

2) Transport truck insurance (Including fire and explosion or fire as result of explosion)
Bodily Injury—$25,000 each person; $50,000 each accident.
Property Damage—$25,000 each accident.

The above limits of liability may be increased to suit the needs of the individual operator. (If desired, please state.)

Signature.....
(Name under which business is to be transacted)

By.....

Signed at .....this.....day of....., 194.....

stall appliances and who do not maintain or service appliances and equipment may purchase protection at an annual minimum premium.

Dealers and distributors are also afforded National Standard Automobile policies with extended coverage for explosion or fire resulting from explosion while butane or propane is stored in or is being transported in tank trucks described in the policy.

While it is true that the industry is now being afforded the desired and adequate insurance protection, the dealer must be ever mindful of the fact that his own everlasting vigilance and precaution against accidents must be the price of this continued availability.

The dealers and distributors cannot expect their insurance carrier to bear the brunt of educating the public in accident prevention; they must police their own industry. The dealers must first become accident conscious. The causes of customer accidents and work failures which result in accidents should be freely discussed with and fully understood by all employes.

All employes should be required to fully acquaint themselves with all of the rules and regulations contained in Pamphlet 58, published by the National Board of Fire Underwriters so that they may, in turn, be in a position to educate the consumer as to the proper, safe use of appliances.

Full and complete cooperation on part of the dealers and distributors will inevitably result in lowering the accidental frequency of consumer accidents and will go a long way towards educating the public that the use of butane and propane products for domestic and industrial purposes, is no more dangerous or hazardous than the use of coal or city gases.

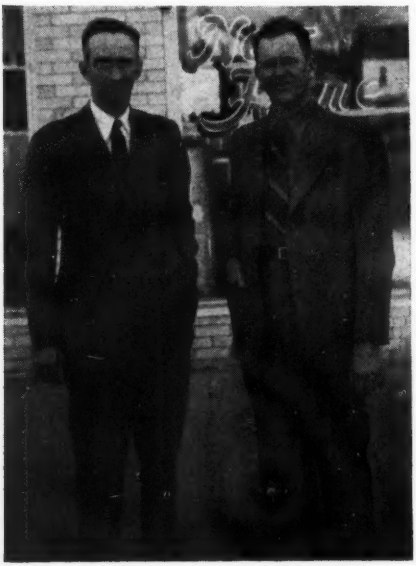
Don't Everybody Go — but —

GI's Don't Need Experience To Work for Carl Ticer

By O. D. HALL

RETURNING GI's are proving their adaptability to the liquefied petroleum gas industry in the organizations of Ticer Butane Inc., and Ticer Equipment Co., Woodward, Okla.

These men do not have to show previous experience in the business to be given a job by Carl Ticer, president of both companies. They are only required to demonstrate ability and desire to adapt themselves to the requirement of the firms.



Carl Ticer, president, Ticer Butane, Inc., at left, and Ernest Frantz, manager and general service manager of the firm at Woodward, Okla.

Mr. Ticer personally interviews each applicant, and also investigates his record in the community where he lives or was reared. If this background is satisfactory, the applicant is placed on the payroll, not necessarily in the job for which he applied. If he is found to possess the personality and aggressiveness which would indicate that he could succeed as a salesman he is given a trial along that line.

The firm goes along with the GI vocational training program and holds general sales meetings once each month at the headquarters store in Woodward and twice each week at the branch stores in Fairview, Carmen and Alva. GI's also are given training on the job in servicing and installing equipment and appliances.

Enthusiastic about the ability and desire of the average returned veteran to make good, Mr. Ticer says that he has never been compelled to discharge but one of them

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and that was because he could not adapt himself to the B-P Gas business. (See "Apprenticeship" story, page 65.)

"I have plenty of applicants for jobs. We pay top wages, our employes are satisfied and it is through them that we find most of our new employes," said Mr. Ticer.

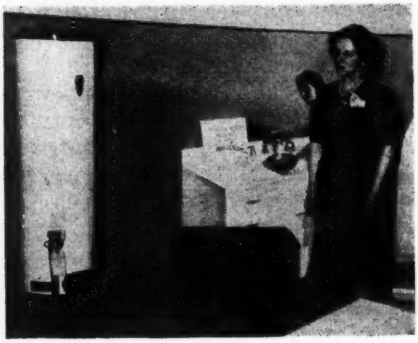
The firm had seven pipefitters and their assistants when this article was written. Three of them were licensed inspectors. They are trained to fill the exacting requirements of the company and to follow the state regulations.

Mr. Ticer does not subscribe to the theory that either butane or propane will become dominant in the business. He handles both fuels, installs equipment of both types and is shaping his future plans to keep on along the same lines. Aside from his inability at times to build up a sufficient reserve of one fuel or the other, he anticipates no continuing shortages for the dealer who can contract for his B-P Gas in advance or can provide sufficient storage facilities.

When equipment and appliances were available only under priorities or certificates, the company took orders for future delivery, requiring a deposit with each order. It then installed the piping so that the equipment and appliances could be connected quickly as soon as available. It purchased a 30-foot trailer upon which six or seven systems could be carried.

This was the average number that could be installed in one day. About 75 or 80 systems had been delivered under this plan by the second week in January. There remained a sizeable backlog of orders on which no definite time for delivery could be set because of strikes, labor and material shortages, and other troubles, mostly hang-overs from the war. Mr. Ticer, however, expressed confidence that the dam of limited sup-

This "White" Tractor Model single-barrel propane transport truck (3350-gal. capacity), operates out of Woodward. Ed Geerdes, driver and service man stands beside it.



B-P Gas appliances and cardboard display set-ups of other appliances and fixtures to come, surround Miss Edna Callaway here.

plies would soon break. He was banking on this belief by getting all set for a big business.

Based on December and January records, Mr. Ticer estimated his sales at 225,000 gallons of B-P Gas a month. When equipment and appliances are available in large quantities these figures are bound to mount, if the firm is ready to take care of the increased business which he believes will be forthcoming.

Ticer Butane, Inc., sells and delivers butane and propane gas and performs simple service operations on its various routes. The Carl Ticer Equipment Co. owns and operates in Woodward and surrounding towns retail stores which sell and service B-P Gas equipment and appliances, farm machinery, and certain lines of household equipment.

Headquarters of both firms are at Woodward, Okla., located in a one story, 75x150 ft. brick and steel building which, with lots, cost $17,500. The building was completed last September. The main storage plant of the company is on Highway 270 just outside the southwestern city limits of Woodward. Branch stores and plants are located at Fairview, Alva and Carmen and B-P Gas delivery facilities are maintained at Buffalo.

Don Abernathy, at Fairview, is secretary-treasurer, and Charles Albright, at Alva, is vice president, of Ticer Butane, Inc.

With a background of several years' experience in selling farm implements, hardware and household appliances at Fairview and elsewhere, Mr. Ticer opened his liquefied petroleum gas and equipment business in Woodward in 1944. He expanded to his present extensive business in Woodward, Harper, Woods, Major, and Alfalfa counties and adjoining territory by acquiring properties and routes of a liquefied petroleum gas company which operated at Alva and Carmen and by putting in his own stores and plants.

Fill All Tanks en Route

The motto of the Ticer firms is to give service when it is wanted. To facilitate this policy, they localize delivery and sales as far as possible, limiting routes to 30 miles. Drivers are instructed to fill all customers' tanks while out on their routes so as to avoid unnecessary return calls. Route drivers are not permitted to sell equipment and appliances but are trained to perform simple service, repairs and adjustments.

The most popular sizes in tanks

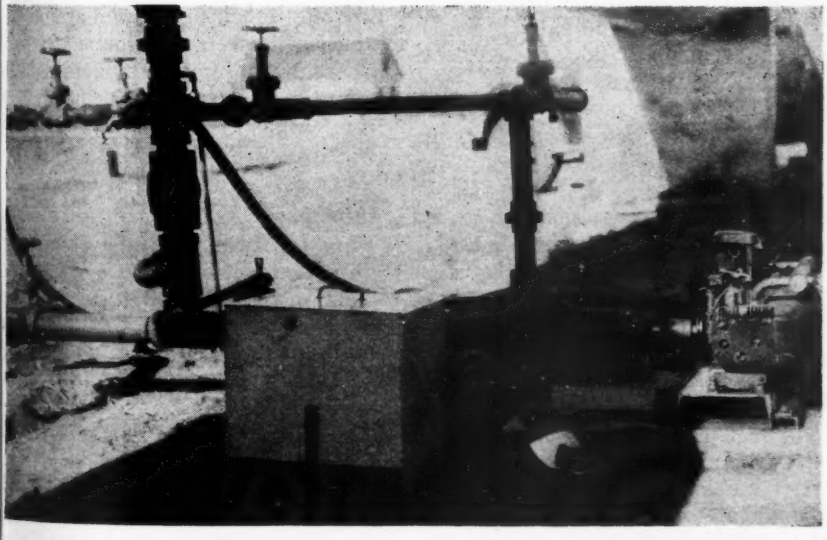
in the Ticer territory range from 390-gal. to 460-gal. for propane and 530-gal. for butane, judging from sales records of the company. Storage facilities of the company, include an 8400-gal. tank at Woodward, one of the same capacity at Fairview, and 3000-gal. tanks, each, at Alva and Carmen.

The pumping and piping equipment for the Ticer plants was designed and fabricated by Corken's in its Oklahoma City plant and shipped to Woodward and Fairview. The Woodward plant was installed in less than four hours' actual working time.

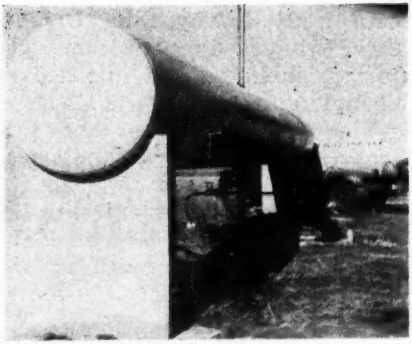
The installation, practically duplicated at Fairview, includes one 4-hp, internal combustion, air-cooled, vapor-safe, gasoline engine, with a 2½-in. by 2-in. Dayton-Dowd liquefied petroleum gas pump, fabricated and installed as a single unit.

The plant gives fast and safe operation with low maintenance cost. It is designed to keep the velocity of the liquid entering the pump below 4 ft. per second and to hold the pressure loss from the transport to the tank to ¾-lb., or less.

A 3-in. and 2½-in., forged, seamless steel eccentric swage nipple at the pump suction is used to eliminate vapor pockets. Flexible metal hose, 3-in. on the suction side and 2-in. on the discharge side, is used to protect the pump from strain due to piping expansion or tank settlement and against



Part of the Corken's engine-driven B-P Gas pump and connecting loading and unloading piping system at Woodward. This is installed under the center of the 8400-gal. propane storage tank.



Ticer Butane, Inc., has two of these 8400-gal., propane storage tanks; this one at Woodward and the other at Fairview.

possible blows on the piping system. A 3-in. propane strainer is installed to protect the pump from sand or scale. For transport unloading and for delivery truck loading, two 2-in. rubber hose connections are provided for each purpose, so that both operations may be carried on at the same time.

The transport is unloaded into the delivery trucks at 25 lbs. normal differential pressure. Rates of unloading differ somewhat but average time for unloading a 3000-gal. transport is 1 hour and 10 minutes, and for unloading a 12-gal. delivery truck is 20 minutes.

Mr. Ticer has two duplicates of the Woodward engine-driven pumping units, one at Fairview and the other at Carmen. These are portable and can be used at locations where electricity is not available.

The Ticer firm operates six delivery tank trucks and three transport trucks. These are mounted on Diamond-T, International, Chevrolet, White or G. M. C. chassis. Mr. Ticer says that he intends later to mount all his delivery and transport tanks on 2-ton Diamond-T trucks.

Two single-barrel, 1166-gal. McNamar Boiler & Tank Co. tank trucks operate from Carmen. A 3550-gal. single tank, White tractor-type propane transport, a 3840-gal. twin-tank propane transport and a 1216-gal. propane delivery truck, travel out of Woodward. The Fairview territory is served by a 1216-gal. propane delivery truck and a 1200-gal. butane transport. A 1216-gal. propane delivery tank truck operates from Alva. The Buffalo territory is served by a 1200-gal. butane delivery truck.

With the aid of a $10,000 parts stock and a well-equipped service shop occupying a 30x75 foot space in the Woodward office, the firm expects to carry on a campaign for the sale and servicing of carburetor equipment on trucks and industrial power equipment as soon as such equipment is available in quantities. It now has the agency for "Algas" carburetors.

Since B-P Gas dispensing stations are few in that section of Oklahoma, Ticer Butane, Inc. plans to install a butane dispensing unit at its storage and pumping plant on Highway 270 just outside of Woodward; also, to establish fuel dispensing stations along highways at several other points in its territory. Present plans include erection of pre-fabricated houses at these filling stations in which the attendants may live and which also will be provided with space in which to display and service liquefied petroleum gas appliances and equipment.

Flame Weeders
Help Balance the Dealer's Load

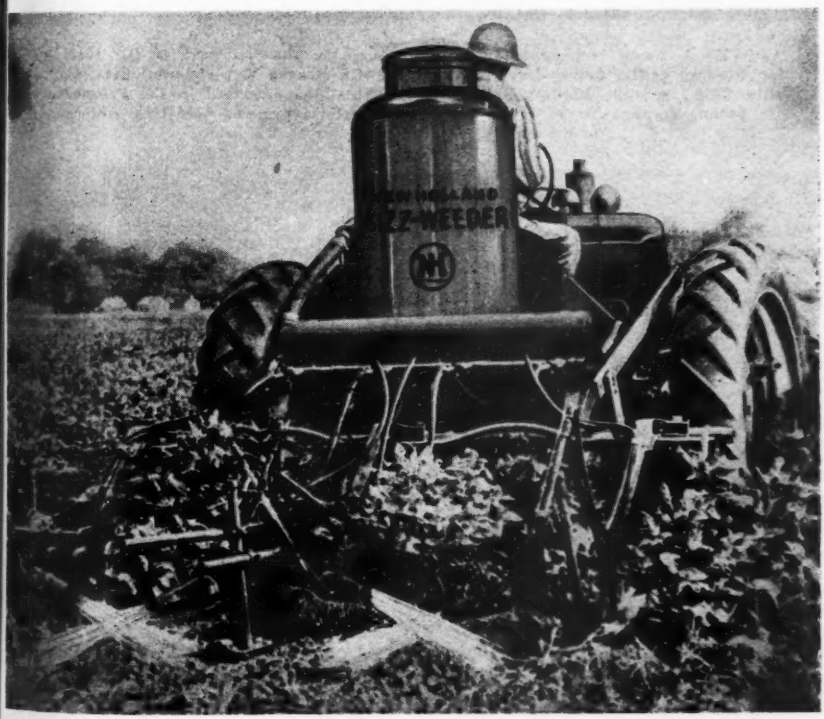
Flame weeding with B-P Gas is developing rapidly. Last month (Page 23) we described experiments at Stoneville, Miss. On these facing pages are pictures of equipment.—Ed.

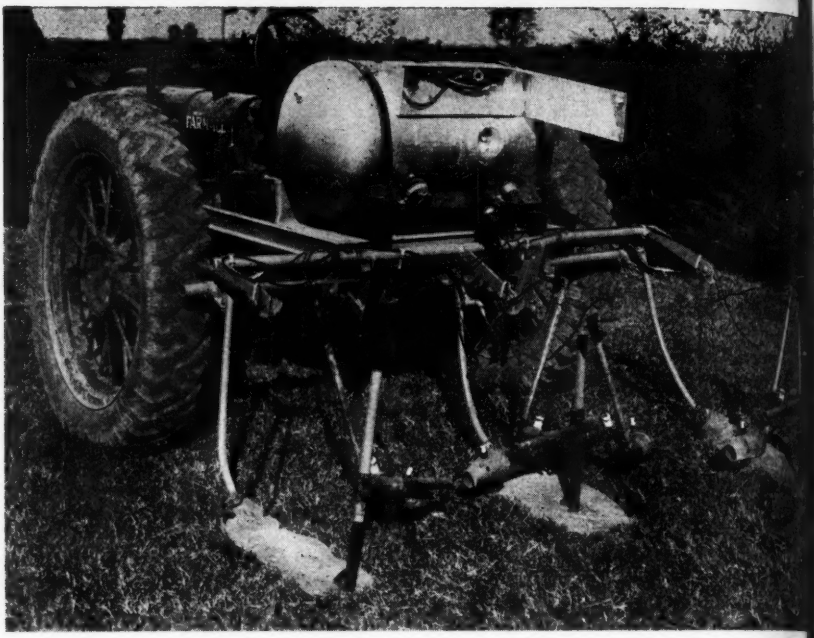
THE "Sizz-Weeder" is designed to flame-hoe in the crop row by the use of a controlled flame, which destroys the weeds and grasses in cotton and other crops without damage to the growth of the plant, itself.

Flame-hoeing cotton costs less than 50 cents an acre in comparison to an average cost of $3 to $4 per acre for hand-hoeing, as the Sizz-Weeder operates on low cost butane or propane gas.

The 1946 Sizz-Weeder is now in production in both two-row and four-row models. Either the two-row or four-row model can be used with Farmall "H" or "M" tractors or with John Deere model "A" or 'G," all having the hydraulic pump arrangement necessary for using Sizz-Weeder equipment.

On the average, the two-row model





ABOVE: A 2-row propane flame cultivator used in the last part of the 1945 season for weeding cotton fields, developed by the Delta Branch Experimental Station, Stoneville, Miss., and the Phillips Petroleum Co. This was described in the February issue of "Butane-Propane *News*" (Page 23) and its performance and operating cost compared to the air-oil operated cultivator shown below.

es approximately 7½ gallons of ropane or butane gas per hour, hile the four-row model averages bout 15 gallons per hour. It is manfactured by the New Holland Maine Co., New Holland, Pa.

Boll Weevil Is Doomed

The flame weeder's usefulness is ot limited to cotton. Corn, cane, elery and many other crops are being ultivated by these machines.

Of vital importance in cotton cultiation is the fact that the weeder not nly kills weeds, but also destroys oll weevil, heretofore impossible to radicate—and does not injure the otton plant!

The "Sizz-Weeder" is the invention f Price C. McLemore, of Montgomry, Ala., who developed it on his own otton field. The 2-row machine, with urners 10 inches wide and 22 inches ong, can cover 25 acres in 10 hours, he same time it would take a hand aborer to chop half an acre by hoe.

Magnitude of Gas Industry Revealed in AGA Report

Customers of the gas utility companies numbered 20,156,000 at the nd of 1945, according to E. J. Boothby, president of the American as Association. He says further hat this is the largest number in he history of the industry and repesents an increase of 1.9% over the 944 figure. Of this total, manufactured and mixed gas companies erved 10,659,000 and natural gas ompanies served 9,497,000 customers.

Revenues of the entire industry pproximated $1,141,374,000—an increase of 3% over 1944. Natural gas evenues totaled $692,526,000 and anufactured and mixed gas companies $448,848,000.

NGAA Will Discuss Industry Changes

P. M. Raigorodsky, vice president, Glen Rose Gasoline Co., Houston, is to head the convention program committee for the 25th annual convention of the Natural Gasoline Association of America, according to an announcement by the president of the association, J. H. Dunn, president, Shamrock Oil & Gas Co., Amarillo. The convention is scheduled for April 17-19 at the Baker Hotel, Dallas.

First Meeting for Years

In commenting on plans for the three-day meeting, Mr. Dunn stated elaborate preparations were being made for the first open discussions of radically changing conditions within the industry in several years. "The NGAA is to celebrate its 25th anniversary at a time when the industry is passing from its traditional 'one product' phase into one of broadly expanded operations in which it will probably meet demands for many products," he said.

"Both the natural gasoline and cycling industries are in enviable positions today with respect to motor fuel and chemical raw material markets. Their modern plants have an efficiency of fractionation permitting the maximum extraction of valuable hydrocarbons either as pure products or in many desired blended combinations.

"This war stimulated modernization, the introduction of new processes and the potentialities of the changed operations need to be studied and correlated, and that is to be the theme of this first convention in two years."

Training Servicemen

On Water Heating, Space Heating, Servicing Problems

By C. C. WESTMORELAND

THE methods used for instruction of new people on the servicing of water and space heaters corresponds closely with the techniques in connection with range servicing.

Fundamental principles of gas utilization and specific points of mechanical information are covered through the medium of lectures, drawings, cut-away appliances and controls. Practice manipulation and the development of a routine are accomplished on operative demonstration equipment and appliances. The only variation will be the new subject matter covered and various points of emphasis depending upon company policy and the nature of the appliance discussed.

Water Heater Servicing

The fact that rod and tube thermostats are used almost universally simplifies the instruction relating to heating controls. Individual manipulation on the various rod and tube controls is covered through the use of drawings, cut-away controls and operative demonstration boards similar to the one shown in Fig. I.

In this manner, servicemen are familiarized with the service problems on water heater controls and are given an opportunity to practice adjustments. Items like dip tubes, flue baffles and water motors are new to them and warrant more explanation in the lecture phase of the subject. The service policy of the company involved will determine the amount of detail necessary in the training course relating to water heating controls and accessories.

Service to water heaters usually

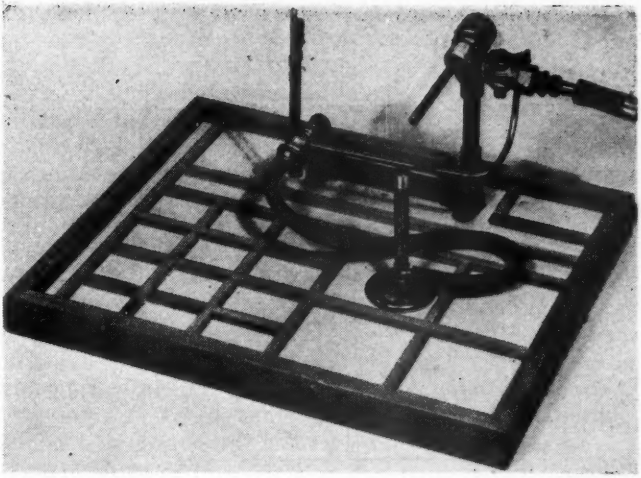
MANY NEW MEN are entering the liquefied petroleum gas industry. They will be dealing with a product, equipment and appliances which require specific knowledge.

They, and men of experience, as well, can profit from information experts have accumulated.

Average dealers are often handicapped by a lack of time and facilities in giving proper instruction to their servicemen and installers. Large organizations make this a regular department of their business.

Good ways that some experts have learned to handle service problems are now being made available to readers of BUTANE-PROPANE *News* through a series of articles written by C. C. Westmoreland for natural gas utilities, large and small, and in their presentation here have been edited as to their applicability to the B-P Gas industry by Harold W. Wickstrom.—Editor.

C. C. WESTMORELAND



ig. 1. Manipula-
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r controls assem-
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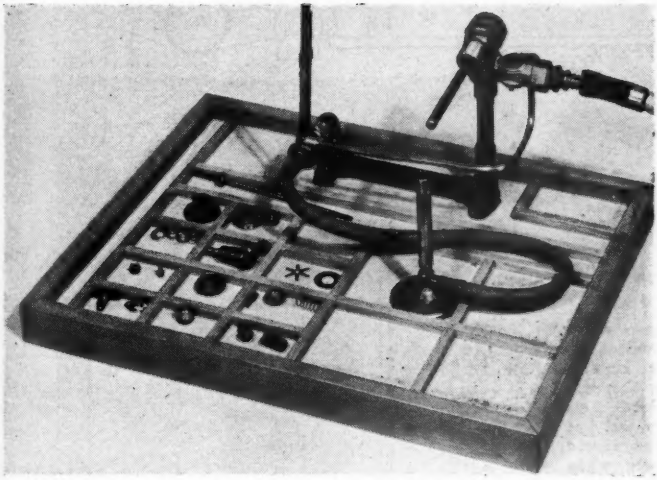

includes items such as lubricating valves, cleaning thermostats, adjusting automatic shut-off devices and calibrating thermostats. Such operations should be practiced as part of the training course.

Although water heaters require less adjusting and servicing than some other type of appliances, routine inspection procedure should be encouraged to insure complete coverage of items which might prove unsatisfactory. The housewife's habit of stuffing oily cloths, paper

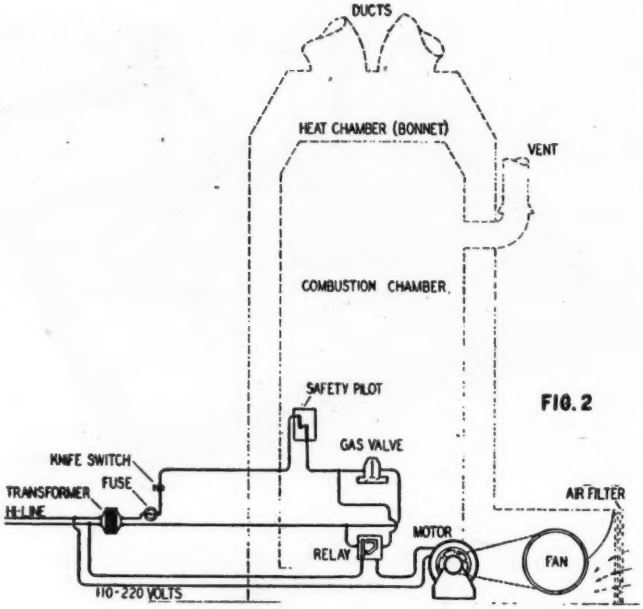

FIG. 2

Figure 2 shows t
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a fan and sim
knife switch. This a
rangement requir
attention each ti
the furnace w
started or stopped

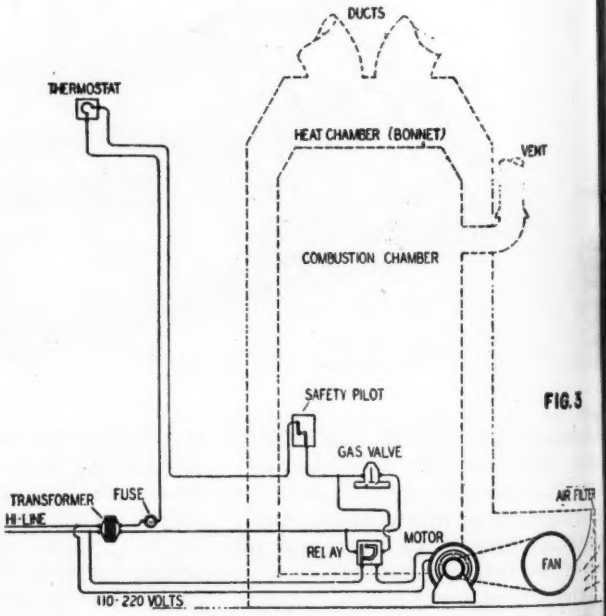


FIG. 3

Figure 3 shows a fan and a thermostat replacing the knife switch. This arrangement provided for automatic control but cold air was forced into the room when the furnace was started.

nd shopping bags around the combustion chamber or storing cleaning solvent on the top of the water heater is too common to be ignored. Improper installations by home mechanics not familiar with venting requirements is another reason for including a definite inspection routine in the training program.

The American Gas Association Heating Manual and servicing literature published by water heater manufacturers and manufacturers of water heater accessories are good sources for training material. The general instructions at the front of the American Gas Association Water Heating Manual are valuable as assigned reading and as material for the lecture and discussion sections of the course.

The detailed instructions on how to adjust thermostats and automatic pilots are helpful in the manipulation phase of training and are useful to new people for reference purposes. The equipment necessary for conducting this course should include representative types of controls and at least a few representative types of water heaters.

Manipulation boards similar to the one illustrated in Fig. I can be used to represent the controls found on various types of water heaters, thus reducing the number of complete water heaters it would otherwise be necessary to have.

Portable Space Heater and Furnace Servicing

Instruction on these two subects

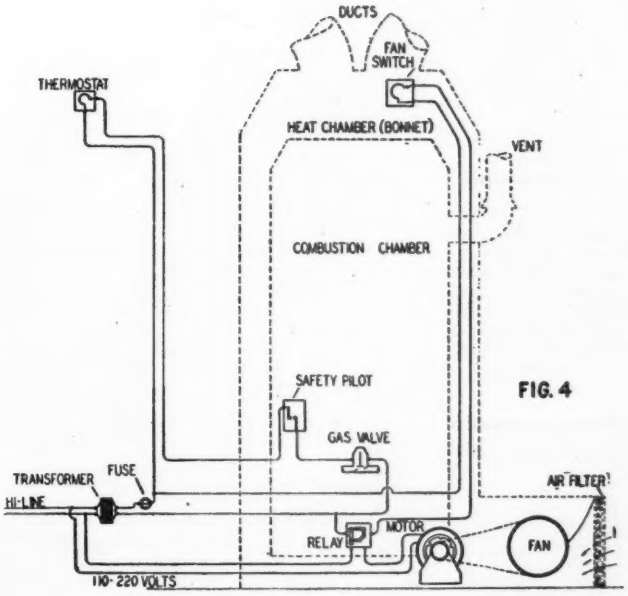


FIG. 4

Figure 4 shows the addition of a fan switch which delays the operation of the fan until warm air has reached the bonnet of the furnace.

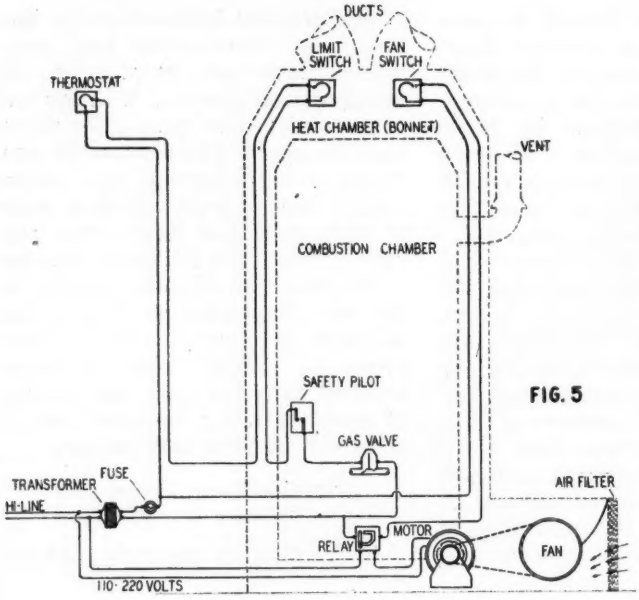


FIG. 5

Figure 5 shows the addition of the limit control which is a thermostat installed to prevent the furnace from overheating in the event the fan belt breaks or the filters become clogged.

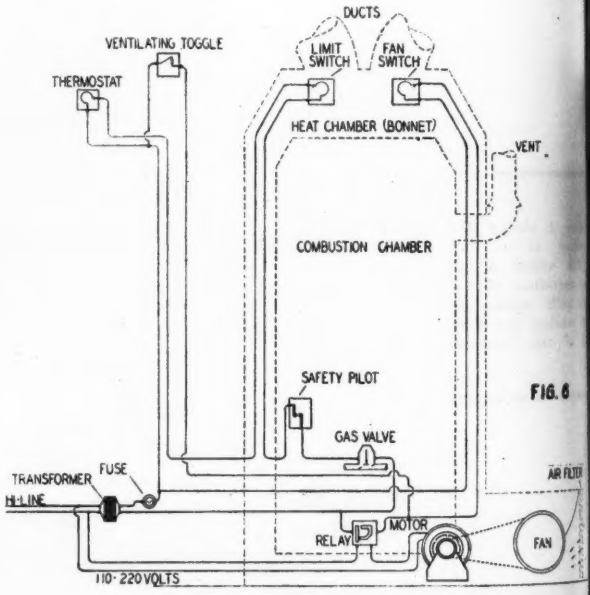


FIG. 6

Figure 6 shows the forced air furnace control arrangement complete with a ventilating toggle used for circulating air during the summer months.

is complicated by the fact that no manual has been prepared by the gas industry relating to space heating. The mechanics of adjusting portable space heating is usually not involved or complicated. With adequate instruction, new servicemen readily learn how to get satisfactory flame adjustments on good portable space heating equipment.

The major training problem is familiarizing them with old models which cannot be adjusted satisfactorily. Since most of those unsatisfactory models have been in use for many years, they are well known to most dealers who have ceased trying to make them operate satisfactorily.

The operation of gravity furnaces and forced air furnaces are not so apparent, and inexperienced people require some explanation to give "students" an understanding of how they are constructed and operate. The series of drawings shown in Fig. 2, 3, 4, 5 and 6 have been valuable aids in teaching servicemen the function of the various controls used commonly on forced air furnaces.

Operation of Controls

By adding one feature at a time

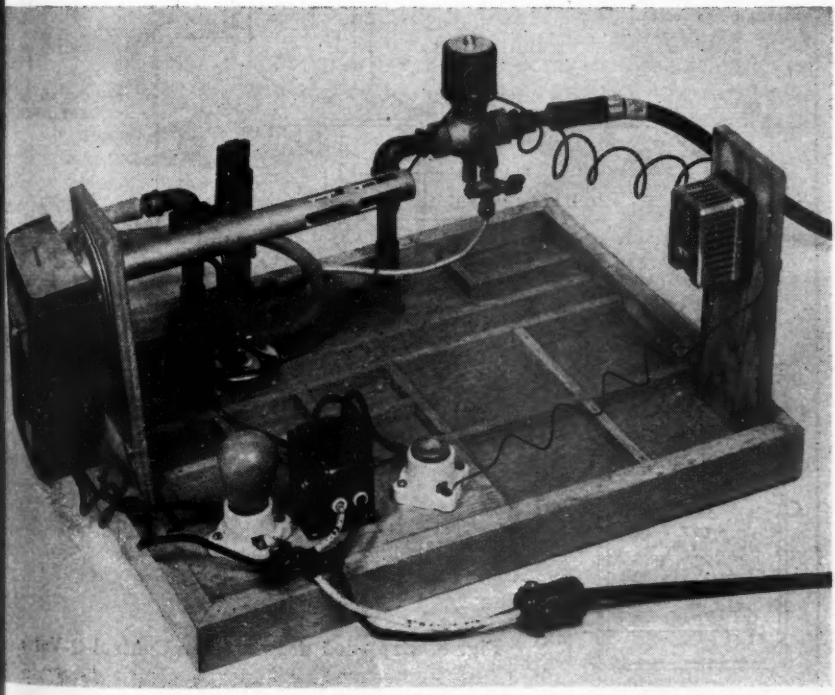


Fig. 7. Manipulation board equipped with forced air furnace controls.

Greasing and Cleaning Instructions

1. Remove knob and cover plate.
2. Remove stop. Care should be taken not to lose bushing.
3. Depress contact points and remove valve core assembly. NOTE—On certain models valve core assembly will not clear plunger. On these models, remove top cover plate, metal and rubber disks, and plunger.
4. Wipe all parts clean.
5. Fill grooves in core with vaseline, wiping off all but thin film on core. Remove all surplus grease.
6. Replace core. Check for free movement of core by turning manually.
7. Reassemble. Be sure contact fingers make good contact when core is in proper position.
8. Check for leakage through the valve.
9. Check operation of valve and sequence of lights by pushing button.

NOTE—Normal sequence of lights: High—Red and white; Medium—White; Low—Red.

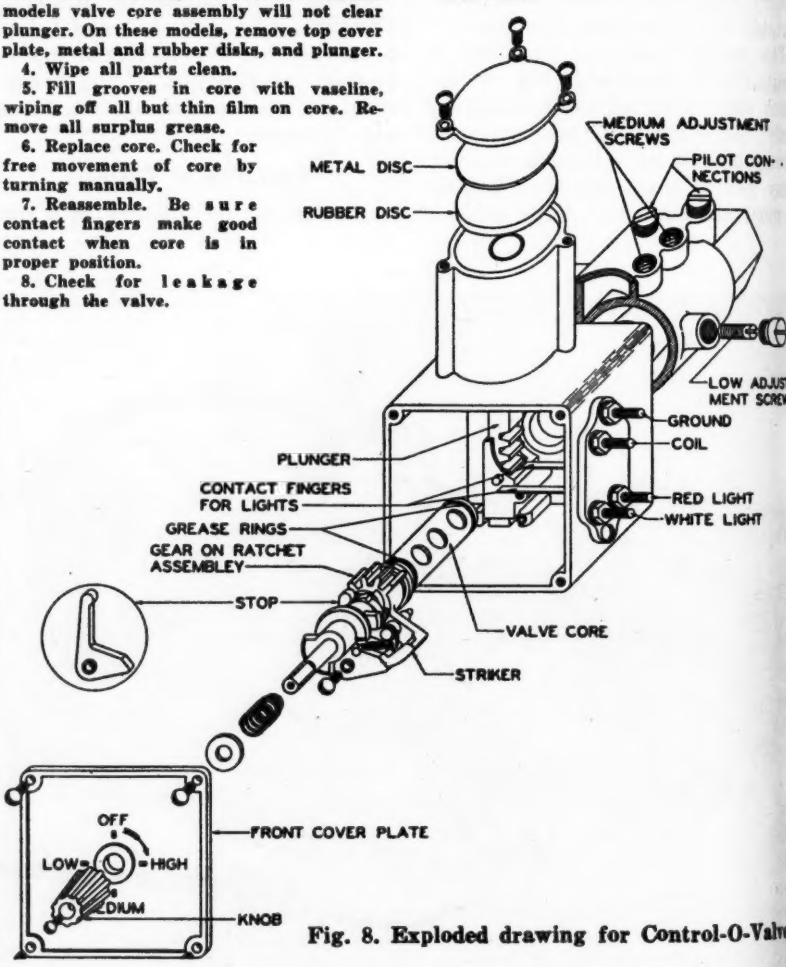


Fig. 8. Exploded drawing for Control-O-Valve.

in this manner, what appears to be a rather complicated mechanism, becomes quite simple. The next step is to introduce the control shown diagramatically in the drawings. The manipulation board shown in Fig. 7 is one method which has proven effective. By connecting the board to a supply of gas and electricity, all the controls can be made to operate as though they were installed in a forced air unit. The final step is to familiarize trainees with the operation of the controls in an actual furnace installation. There are some advantages in covering this point in the "classroom" under the supervision of an instructor, but it may be considered a part of the field training or experience phase of training providing the new man is adequately supervised during his initial field experience.

"Exploded" Drawings

During the war period, industries which had assumed responsibility for producing war equipment, were faced with the problem of instructing new people how to assemble rather complicated mechanisms. The conventional blue print did not meet that need because large numbers of people working in war plants had not received instruction on blue print reading.

The problem resulted in the development of three dimensional drawings which were named "exploded drawings," because the various parts were in proper relationship to each other. That technique proved very effective and was widely used with good results. The "exploded drawings" have also been used effectively in training appliance mechanics in the dismantling and servicing of gas appliance controls.

Fig. 8 illustrating the widely used "Control-O-Gas" valve is a good example of how this type of drawing can be used in the appliance servicing field. Large photostats of these drawings are helpful in classroom discussions for new people, while smaller copies are helpful for reference purposes by servicemen in the field.

The cost of such drawings is higher than photographs or simple line drawings but instruction presented in this manner is frequently so clear that it is usually not necessary to hold the customary meetings to discuss the subect. When that economy is considered, the "exploded" type of drawing is an inexpensive method for issuing training material.

Homegas, Inc., Wichita, Kan., Building Six 18,000-Gal. Tanks

Homegas, Inc., Wichita, Kan., was granted a charter by the State of Kansas in February. A $100,000 corporation, Homegas, Inc., is licensed to engage "in the manufacture, distribution and sale of liquefied petroleum gas, systems and appliances."

Sam Boothe, vice president and general manager, is well known in the industry, having been active in B-P Gas in this area for more than 10 years.

The trade name "Homegas" has been used for nearly 10 years and its trademark is registered by the U. S. patent office. General offices are located at 149 N. Rock Island, Wichita.

Richard Verkamp is New Leader Of National Butane-Propane Assn.

AT the Feb. 18-19 meeting of the board of directors of the National Butane-Propane Association in Chicago, J. Richard Verkamp, The Verkamp Corp., Cincinnati, was elected president for the ensuing year.

J. R. VERKAMP

Elwin E. Hadlick, of Minneapolis, who has acted as president of the organization during the past eight-month formative period, was elected executive vice president. He will actively manage the affairs of the Association. Offices of the Association will be continued at Minneapolis.

The board of directors also acted on applications for membership from distributors operating in 34 states, voted to recommend to the members that active membership be limited to those concerns who pay Federal income tax on their earnings and who are not directly or indirectly engaged in production or refining, and to conduct a national convention and equipment show early this fall.

Mr. Verkamp, in accepting the presidency, said "There has long been need for a national association of independent distributors of liquefied petroleum gases, devoted

Directors in attendance at meetings of board of directors and executive committee of National Butane-Propane Association at Chicago, Feb. 18-19. Standing, left to right: E. Martin Anderson, R. J. Coughlin, V. J. Mueller, John L. Locke, D. O. Mecklenburg, Earl C. St. Cyr, E. E. Rapp, Leland L. Harms. Seated, left to right: Samuel Kapnek, P. A. Anderson, Elwin E. Hadlick, J. Richard Verkamp, W. T. Joplin, W. E. Fraley, V. W. Packard.

to promoting their social, educational and scientific welfare and service to the public. National Butane-Propane Association was established to fill that need.

"During the past eight months the organization has been gathering and coordinating the opinions of distributors from California to Maine and from Florida to Washington. It is now in position to render service to independent distributors to assist them in their task of furnishing liquefied petroleum gas to the public for cooking, heating, lighting, refrigeration, etc. At present we have members in 34 states; a cordial invitation is extended to all independent distributors in the United States to join in this effort which is being made for the benefit of all.

Associate Membership Is Open

"Producers and refiners of gas, equipment, appliance and accessory manufacturers and distributors, and others not eligible for active membership in National Butane-Propane Association but nevertheless interested in and affected by problems of distribution are invited to affiliate with the organization as associate members."

Resignation of George F. Eiker as a director in the Association representing distributors in Illinois, was accepted; Mr. Eiker resigned because of poor health. His place on the board was filled by the election of E. E. Rapp, Pur-O-Pane Bottled Gas Co., Sparta, Ill.

Other new directors elected were Fred W. Warner, Jr., Southeastern Natural Gas Corp., Miami, Florida, representing Florida distributors, and W. S. Lander, Rulane Gas Co., Charlotte, N. C., representing North Carolina distributors.

The committee to make plans for the annual convention, as appointed by the Board, is composed of E. E. Rapp, Sparta, Ill.; W. T. Joplin, Phoenix, Ariz.; Peter Anderson, Portland, Maine; and Hermann Paris, Sandersville, Ga.

A series of district meetings is being planned for various cities throughout the country between now and the time of the annual convention.

L. F. West Appointed Oklahoma Inspector

L. F. West has been added recently to the force of State Fire Marshal A. J. Ellis as an inspector in the Oklahoma liquefied petroleum gas administration.

Mr. West was nine years with the Skelly Oil Co., Tulsa, as manager of B-P Gas plants for that company. Before that he was with the Phillips Petroleum Co., Bartlesville, Okla. For two years during the war he was employed in the engineering department of the Douglas Aircraft Corp., Oklahoma City.

Highway Dispensing Station Opened at Enid, Okla.

A new B-P Gas dispensing station has been opened at Fairview, Okla., by the E. & E. Butane Co., Enid, Okla.

The station retails a mixture of butane and propane from its station on the highway north of town for use principally in trucks and tractors.

Fighting Small
Operati

This presentation of how to fight small fir with carbon dioxide fire extinguishers is ma possible through the courtesy of America LaFrance-Foamite Corp., Elmira, N. Y., ma ufacturers of the equipment discussed. Dea ers may well post this on their bulleti boards.—Ed.

1. In case of fire, remove extinguisher fro hook and carry to scene of fire. Ap proach fire—discharge range limited t eight feet.

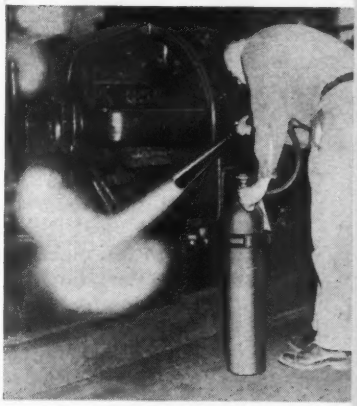
2. To operate handwheel types, set cylinde on ground, remove horn and hold gri firmly with one hand. Pull pin and ope valve with other. Small units may be he in one hand and operated with other.
   To operate squeeze-grip types, pull pi hold by carrying handle, place palm o hand over operating lever, and depress Discharge is stopped by releasing lever (D-Yoke on handle will lock extinguishe open for recharging).

3. For fires on flat surfaces, direct discharg at nearest edge of fire and, using sweep ing side-to-side motion, extinguish near est sections first, then follow up fire. T conserve gas, close valve temporarily when moving around fire. Continue dis charge after fire is out to avoid danger of reflash.

Carbon Dioxide

enance

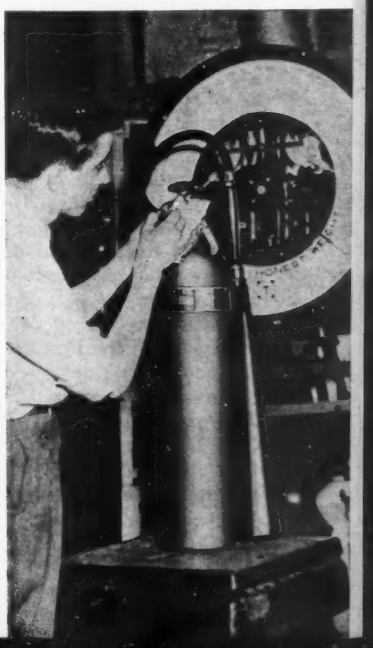
fective on small Class B fires (flammable quids, oils, etc.); Class C fires (electrical uipment) in the incipient stage; Class D res (automobiles, trucks) and Class Dt fires (tank-trucks and trailer-tractors).



3. For fires in small open containers of flammable liquids, approach as closely as possible from windward side, and rest discharge horn on edge of container. Direct gas on burning surface at base of flame. Avoid blowing liquid from container.

4. For electrical fires, aim discharge at base of burning insulation.

5. Annual recharging is not required, as the gas is good until used. Recharge immediately after use even though only partly discharged. Inspect and weigh extinguisher at least every six months. Enter weight and date on record tag. Should weight fall 10% or more below rated capacity, recharge distinguisher. Conduct annual demonstrations for employees. They should get used to noise of escaping gas, learn to approach fire as closely as possible, and use effectively the relative short period of gas discharge.



Atlantic City Draws Eastern Section

EMERSON THOMAS

GEO. A. BURRELL

E. CARL SORBY

LYLE HARVE

LPGA Annual Meeting

The first general meeting of the Liquefied Petroleum Gas Association for several years has been called for May 27-29 in Colorado Springs, Colo., at the Antlers hotel.

•

ARRANGEMENTS are virtually completed for the first full-scale meeting of the Eastern Section of the Liquefied Petroleum Gas Association to be held since the ending of wartime travel restrictions. Atlantic City will be host to the two-day convention which is scheduled to open April 1 with headquarters in the Ritz-Carlton hotel.

Emerson Thomas, chairman of the Section, is also head of the arrangements committee. The tentative program is expected to include a report on new technical and engineering developments in gas appliance manufacture, by Harold Massey, assistant managing director of the Gas Appliance Manufacturers' Association; discussion on safety in handling liquefied gas, under the leadership of Col. Geo. A. Burrell of Atlantic States Gas Co.; and a report on the national publicity campaign of the association, by E. Carl Sorby of the Geo. Roper Corp.

Other subjects to be presented w include a paper on commercial co ing; one on water heaters, and Servel modern kitchen presentatio

Luncheon speakers are expected develop the theme of closer cooper tion between the LPGA and other sociations having many interests common, notably the Gas Applian Manufacturers Association and t American Gas Association.

Lyle Harvey, president of GAM is expected to fill one luncheon sp in the interests of the appliance a equipment group, and the committe hopes to schedule a representative the AGA to talk on cooperation b tween liquefied gas men and utilitie

Assisting Chairman Thomas on t program committee are: Peter Anderson, Utilities Distributors, Inc. Ed Braem, Protane Gas Service; Se tion Vice Chairman Roy Forsber Country Home Gas Service; Ada Johnstone, The Bastian-Blessing Co R. E. Kiel, Pressed Steel Tank Co R. N. Lingren, Servel, Inc.; Ro Roberts, Pyrofax Co.; R. C. Rober son, Superior Valve and Fittings Co L. E. Seeley, Conservative Gas Co John Van Norden, American Meter Co

A Better Fuel Makes Better Tools

f you own a good watch, then, o matter where in this old world ours it was made, the chances are re than even that it is a better tch than it otherwise would have en because of a small but unus- l manufacturer of tools in New ampshire. When you have taken at watch to a horologist for re- irs, the chances are more than to 1 that New Hampshire-made ols were used, and that a better pair job was possible because of ose tools.

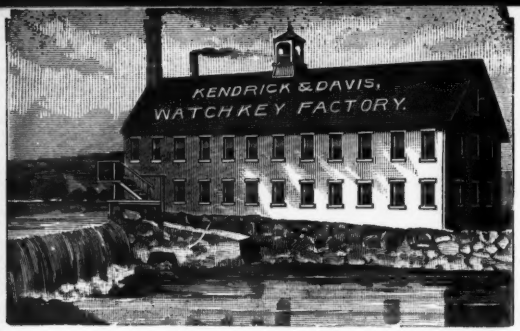
I am speaking of the firm of endrick & Davis, nestled in the othills of the White Mountains at ebanon, N. H. My story would not e complete without a brief history f that company, because its meth- ds of manufacture and ways of oing business are so unusual. Na- ives know it best as the "key hop" for reasons which I shall oon explain. And finally, Kendrick Davis tools are better tools be- ause propane gas is used in their anufacture!

Perhaps you can remember the ld key-winding watches of grand- ather's days. They were ponder- us contraptions which caused many a vest pocket to sag, but they were good and dependable watches, built to withstand the activities of an age which believed that men were created to do hard physical labor. On the whole, they would withstand more punishment than the wafer-thin watches of our days. One of their chief disadvantages was that a separate key was required with which to wind them, and our grandfathers were always losing those keys.

Messrs. Kendrick and Davis were two friendly New Hampshire horologists in their own rights. They were called upon to supply many replacement keys, so Mr. Kendrick finally gave up his regular work and started to manufacture watch keys in a modest way. That was back in 1876, and there were other watch key manufacturers, but it wasn't long before Kendrick & Davis absorbed most of them and were manufacturing well over a million watch keys annually.

That was big business in those days, but in the years from 1890 on, a new era in the watch business developed. Key-winding watches were gradually supplanted by stem winders. The itinerant watch and

By C. C. TURNER
Special Representative
Butane-Propane News



The Kendrick & Davis plant as it was in early days.

clock repair man was on his way out. He was better known as the "tinker," and he travelled from house to house in the country, repairing clocks and watches, mending pots, pans and pails, or even repairing furniture. His shop was carried in a pack upon his back, and his pay was largely in food and lodging. He made his own tools from needles, hat pins, or nails which he begged from his customers.

Mr. Kendrick foresaw the day when this picturesque individual would be but a memory, when the newer and more delicate watches would require precision tools of extreme delicacy. Being a watchmaker by trade, he designed and started to manufacture them. Later he branched out into the manufacture of fractional horsepower low voltage electric motors.

There is a bit of irony in this which I shall later mention, but today about two-thirds of Kendrick & Davis' business is in the manufacture of precision tools and one-third is in making motors. They specialize in the fine electric motors which are required for model electric engines and trains.

Kendrick & Davis precision t
are normally shipped to every co
try in the world, and there isn'
person who has been bitten by
"bug" of building model elec
railroads but that knows of the
cellence of K & D motors, w
the Swiss watch makers are am
Kendrick & Davis' best custome

Imagine the precision of a st
ing tool which can accurately s
1/1000th of an inch! A fine,
man hair measures about 3/100
of an inch! Picture a tool wh
can be used to balance the bala
wheel of the smallest wrist wat
Think of a slender screw dri
with a flattened blade width
less than 1/16th of an inch,
which can take all the strain th
you can give it with your finger
You will not then wonder that
A-1, experienced toolmaker fr
other industries is classed but lit
better than a blacksmith in t
K & D organization.

Four Years—Still a Novice

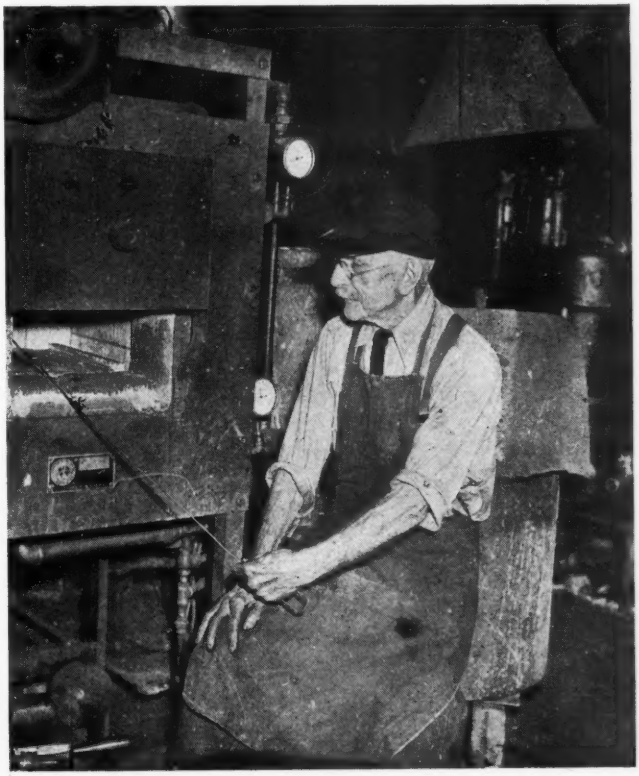
K & D trains its own toolmake
in its own way. It takes young m
and gives them four years of i
tensive training. After four ye
of this training the apt craftsm
may be considered as a novice a
trusted with some of the less de
cate tasks. He or she then fa
a second period of more intensi
training and may be considered
watch toolmaker after 10 or
years.

This intensive training is und
standable when you learn th
many K & D fitting operations
carried as far as possible with t
aid of delicate micrometers,

e final touch is administered by aftsmen who have developed a th sense of "touch," or "feel," at is super-sensitive. I have ver before seen so many gray-ired men with clear eyes and eady hands gathered together in e group, but it is understand-le when you learn of the pride hich these men take in their aftsmanship, and that they de-te their entire lives to it.

Take Elmer Emerson, who is years old and is in charge of eat treating operations. He has en with the company for about 40 years. When he entered its employ he was already considered an expert forger of hand-made scythes and knives.

Mr. Emerson is warm in his praise of the modern propane furnaces and lead pots which he now operates, and which, because of their accurate thermostatic control, take most of the guess-work out of heat treating processes, but he still likes to tinker with the old furnaces, pots, and forges over which he reigned supreme for so many years. Manager E. H. Garrett wisely permits him to do so,

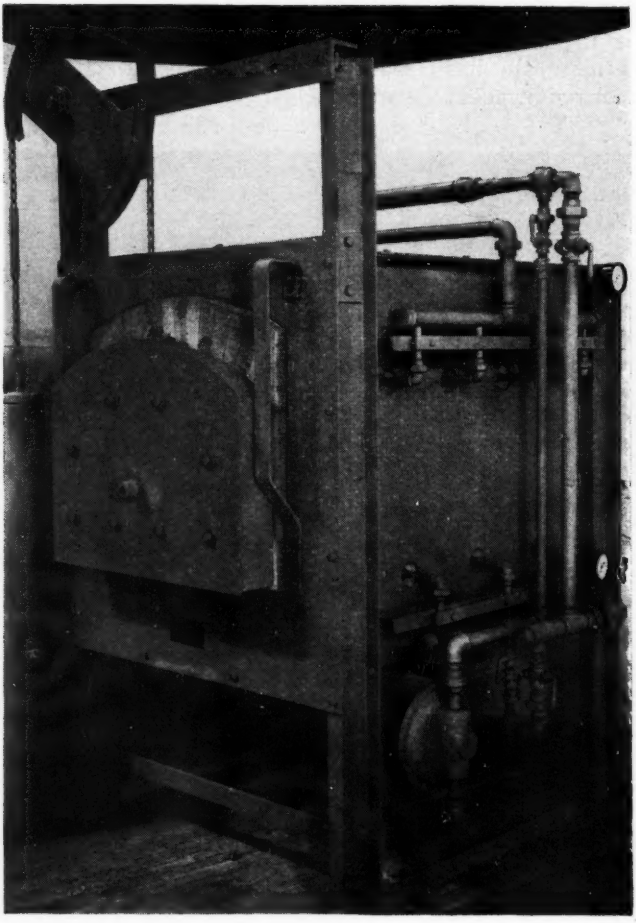


mer Emerson, 87 ars "young" and ill in charge of heat eating operations at e K & D plant, ated in front of e of the company's furnaces.

for the combination of these old pieces of equipment and Emerson's knack with metals has taught K & D many things about heat treating which are not to be found in books.

Propane was not always the fuel for heat treating processes at the Kendrick & Davis plant. Before gaseous fuels were well known, solid fuels were used. The company was one of the first to [illegible] pentane in heat treating. This [illegible] well enough in its day, but [illegible] came a time when the heat cont[illegible] of pentane became an uncertai[illegible] and a dependable source of sup[illegible] was hard to obtain.

The company's blower system [illegible] came erratic because of age [illegible] it was difficult to obtain u[illegible] form results. Pentane consumpt[illegible]



This No. 215 furn[illegible] manufactured by [illegible] American Gas F[illegible] nace Co., require[illegible] input of 210,000 [illegible] for 1 hour to [illegible] it up to a temp[illegible] ture of 1800°F., a[illegible] which it will [illegible] this temperature [illegible] an input of but 61[illegible] Btu per hour.

ried dizzily for no apparent rea-
n, and there was always the sus-
cion that buried storage tanks
d pipe lines were leaking. It
s expensive business to dig up
e pipe lines and tanks for inspec-
on with a regularity that became
eriodic. Mr. Garrett and his as-
ciates decided to act.

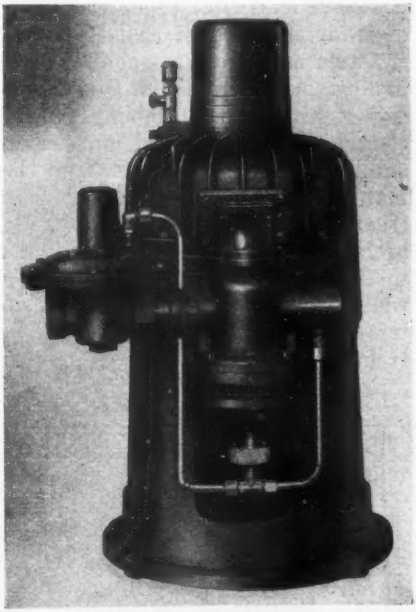
I can well remember when George Kelley, of Utilities Distributors, Inc., and I first walked into the K & D plant for the purpose of converting its then, and still existing, gas equipment to propane operation. I must confess that mine was the enthusiasm of believing that propane could do everything, and George's forte the ability to make it do it.

That was several years ago, and as I viewed this equipment the other day, I could not repress a smile. Our methods of "converting" were, to say the least, primitive. We used the same old blower system, and gas-air ratios were a matter of guesswork in manipulating common gas and air cocks. A small gas furnace and two pots were then converted, and this is the equipment with which Elmer Emerson still likes to "tinker" in his spare time.

Thanks to the engineering ability of Dudley W. Rockwell of the Stanley P. Rockwell Co., Hartford, Conn., K & D now has some of the most modern gas heat treating equipment. An American Gas Co. No. 150BB oven furnace is used for high speed steel processing at temperatures up to 2500°F. A No. 215A oven furnace of the same company is used for pack hardening of tool steels up to 1700°F.

Much Carpenter No. 11 special carbon tool steel is used, and it is hardened to "62 Rockwell C." temperatures in these furnaces and the lead vats are controlled by Foxboro potentiometer controls. The oil tempering vat operates at 800°F., and its temperature is controlled by a Partlow thermostat. The gas mixer, manufactured by The Selas Co., Philadelphia, shows both the gas and air pressures by means of water manometers.

There are conventional hand torches distributed throughout the plant, these being used for any of



This Selas combustion controller accurately proportions the gas-air mixture for the American gas furnaces and other equipment used by Kenrick & Davis.

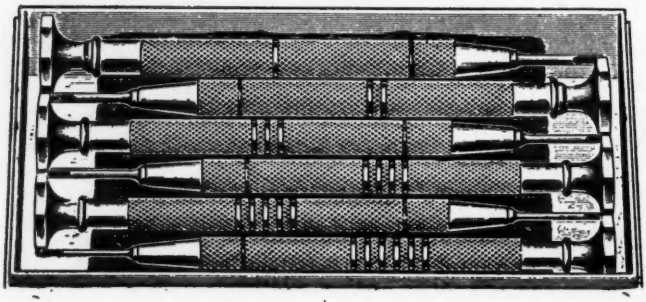
Watch balance wheels are balanced, trued, and poised in this parallel caliper.

the multitude of purposes which may be desirable in a plant of this type.

I have said that there was a bit of irony in the fact that Kendrick & Davis manufacture small electric motors, and so there is. One might expect that this company, being electric minded, would have succumbed to the blandishments of the manufacturers of electric heat treating furnaces. There is plenty of cheap electric current available in the Lebanon area, yet here is a well known manufacturer of electric merchandise that does its heat treating with gas!

One might be inclined to attri ute the use of a combustible fu to typical New England conserv tism, but in this instance I am co vinced that this is not the reas After all, Mr. Garrett is not a Ne Englander excepting by abso tion, and I know his scientific i tegrity sufficiently well to be co vinced that the gas equipme would be thrown out the windo instantly if it did not produce r sults up to his expectations or i a better method of procuring tho results were available.

In fact, Mr. Garrett has told m that propane gas was producin



Small but tou these screwdriv will take all that y can give them wi your fingers. Th are tempered in y prane gas furna

AMERICAN

TRUCK & TRAILER TANKS are KNOWN for:

*MAXIMUM PAYLOAD

*MINIMUM WEAR ON EQUIPMENT

*DURABILITY

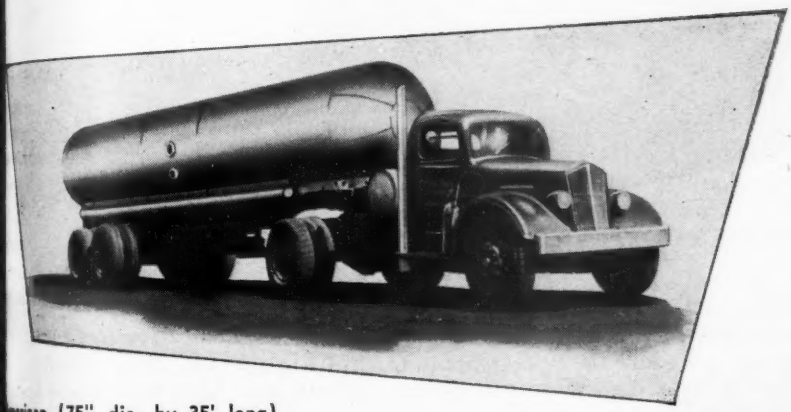
*LOW TRANSPORTATION COST

*LOW CENTER OF GRAVITY

*CORRECT LOAD DISTRIBUTION

*LOW ACCIDENT EXPERIENCE

*PLEASING, WELL-BALANCED APPEARANCE



merican (75" dia. by 35' long)
Semi-Trailer Transport Unit.

perfect unit for bulk hauling—
7,385 Gallons Gross Capacity

TRADE MARK
OF QUALITY

AMERICAN PIPE & STEEL CORPORATION

Engineers, Designers and Fabricators

ALHAMBRA CALIFORNIA

On this staking
a thousandth of
inch may be

highly satisfactory results for his company. This is a particularly bitter pill for the electric boys, coming as it does from a company which is known throughout the world as being superior in its particular field, and especially from a man who is not only the manager of that concern, but is acknowledged as a scientist.

There are hundreds of tool manufacturers throughout the United States, and in all probability one or more of them may be located within your field of operation. Few, if any of them, have more exacting requirements than Kendrick & Davis, who have won world leadership in their particular field because of the excellence of their products. Don't muff this fact: A large part of that excellence is due to its heat treating processes. The company admits it, and those processes are accomplished with propane gas!

To me, a particularly telling argument in combatting electri

t treating competition, or in eeting an inclination on the part a prospect to rush into the use electricity for heat treating rposes, would be to say that the nufacturer of some of the finest most delicate watch repairing ols uses propane gas instead of ctricity.

I'd let that prospect know that is manufacturer, because it also kes electric appliances, might turally be expected to slip into e electric groove. I'd let him ow some of the other reasons y this comparatively small manfacturer is truly great and has acired world renown.

You can do this very thing now, cause of this article.

How about swinging into action, rmed with the proved merits of ur product?

P Gas Utility Will Serve etered Bottled Gas

The United Cities Utilities Co., hicago, a liquified petroleum gas tility since 1930, has organized an filiate under the name of "Metroas, Inc."

Metrogas, Inc., was incorporated on n. 7, under the laws of the state of elaware and is licensed to do busiss in the states of Minnesota, Wisnsin, Illinois, Kentucky, Tennessee, orth Carolina, South Carolina and eorgia. The new corporation will erve metered bottled gas in the areas urrounding seventeen towns now erved with butane-air and natural as from the mains of the United ities Utilities Co. and its subsidiaies.

Two complete bulk and cylinder-filling plants are now under construction, one each at Metropolis, Ill., and Hendersonville, N. C.

The officers of Metrogas, Inc., are: Ralph L. Sieben, president; Robert M. Fisher, vice president and treasurer; J. K. Calhoun, secretary; W. O. Croft, advertising and sales promotion manager.

The directors include: Arthur K. Lee, president of United Cities Utilities Co., chairman; Edwin Henes, of A. J. Lindemann and Hoverson Co., Milwaukee; C. B. Dushane, manager, Midwest Division, American Meter Co., Chicago; Oswald Maland, attorney, Chicago; Ralph L. Sieben, vice president and general manager of United Cities Utilities Co. and subsidiaries, and Robert M. Fisher, secretary-treasurer of the same companies.

K. R. Knapp Promoted By AGA Laboratories

Kenneth R. Knapp has been appointed assistant director of the American Gas Association Testing Laboratories in Cleveland and Los Angeles, H. Carl Wolf, managing director of the association, has announced. He will serve as assistant to R. M. Conner, director of the laboratories, in supervising the testing and research activities conducted by two laboratories of the gas industry's trade association.

The AGA Laboratories, established in 1925, serve as the nation's chief safeguard in the construction and performance of gas appliances. Rigid inspections and tests help make the gas industry one of the safest industries.

Mr. Knapp joined the laboratories in 1929 to take charge of pipe joint research. He was appointed chief engineer in 1930, holding this position until his present promotion.

NBFU Makes New Ruling On Excess Flow Check Valves

IN a bulletin issued by the National Board of Fire Underwriters, approval is now given to the omission of an excess flow check valve in the service outlet of listed liquefied petroleum gas systems under certain conditions.

The entire bulletin, of much importance to butane-propane gas dealers and distributors, is quoted below:

Bulletin on Excess Flow Check Valve

To: Manufacturers of LP-Gas Systems Using ASME Tanks, Domestic, and Manufacturers of Accessories for Such Systems:

We refer you to the Standards of the National Board of Fire Underwriters, Pamphlet No. 58, August 1940 Edition, Division II, Section 2.6, paragraphs (b) and (c):

"(b) Filling pipes shall be provided with approved automatic valves to prevent back flow in case the filling connection is broken. Main shut-off valves adjacent to the tank on liquid and vapor lines must be accessible at all times.

"(c) Except as provided in 2.6(b), all connections to containers, except safety relief connections and filling connections, shall be equipped with approved automatic excess flow valves. This requirement may be waived when such exception is recognized by the testing and listing of the system by any of the authorities listed in B.2(a) when operating conditions make the use of this type of valve impractical."

Underwriters' Laboratories, Inc. has been requested to authorize the omission of the excess flow check valve, heretofore required in the service outlet shut-off valve of listed LP-Gas Systems of the so-called "domestic" type (systems employing ASME tanks of 1200-US gal. or less water capacity), because the use of it brings about a condition which under "operating conditions make the use of this type of valve impractical."

Underwriters' Laboratories, Inc., is agreeable to the omission of an excess flow check valve in the service outlet of listed LP-Gas Systems, provided that:

1. The discharge from the service outlet is controlled by a suitable manually operated shut-off valve:

   (a) threaded directly into the service outlet of the container,

   (b) or which is an integral part of a substantial fitting threaded into or on the service outlet of the container,

   (c) or threaded directly into a substantial fitting threaded into or on the service outlet of the container.

2. The shut-off valve is equipped with an attached handwheel or the equivalent.

3. The controlling orifice between the contents of the container and the outlet of the shut-off valve does not exceed ¼ in. in diameter for vapor withdrawal systems and ⅛ in. in diameter for liquid withdrawal systems.

4. A listed pressure-reducing regu-

30% Faster

CYLINDER CHARGING

SCHOENBERGER

diaphragm packless cylinder valves

A time saver—a money saver. The patented pressure equalizing feature employed in all Schoenberger Cylinder valves permits a larger seat opening with a consequent 30% faster cylinder charging. It also permits the valve to open instantly even with pressure differentials as high as 2500 p.s.i.

The Schoenberger Valve does not stick or "check shut"—another time saver.

Write for Bulletin P.B. 11, describing in detail the exclusive features and many important advantages of the Schoenberger Valve.

Listed under Reexamination Service of Underwriters Laboratories, Inc.

THE W. J. SCHOENBERGER CO.

6810 HARVARD AVENUE • CLEVELAND 5, OHIO

lator is directly attached to the outlet of the shut-off valve and is rigidly supported, or that a listed pressure-reducing regulator is attached to the outlet of the shut-off valve by means of a suitable flexible connection not longer than 20 in. and is rigidly supported.

5. Such systems' total water capacity shall not exceed 1200 US gallons.

Those manufacturers of listed LP-Gas Systems who desire to equip their systems with this excess flow check valve may continue to do so.

Those manufacturers of listed LP-Gas Systems who desire to omit this excess flow check valve shall so advise Underwriters' Laboratories, Inc., and supply four copies of the affected drawings, now in their Re-examination Service Procedures, revised to illustrate the design and construction they intend to use. Upon receipt of such advices and drawings, the necessary steps will be taken by Underwriters' Laboratories, Inc., to revise the Procedures to authorize the omission of this excess flow check valve. The cost of Procedure revisions will be billed to the manufacturers on the same basis as new work.

H. W. GWYNN,
Division Engineer
Gases and Oils.

Review Safety Program With Returning Veterans

War veterans returning to jobs in industry should be re-introduced to the fire safety program, according to the Safety Research Institute, New York City. Many will find processes revised; others may have become "rusty" in the plant safety techniques. A "refresher" course in fire safety, therefore, can be helpful in protecting both the veteran and the plant.

Because industry seems a very s place, by contrast with a bomber foxhole, veterans may look upon s ety precautions as over-cautious. tour of the plant can dramatize t importance of fire safety rules. T safety engineer or foreman can po out scenes of past fires, special f hazards, and measures now taken prevent fires from each of these ha ards.

It is especially important th safety rules, such as the "no smo ing" rule, are understood to be n just arbitrary orders, but essenti safeguards to the worker and t plant.

Fire Drills Should Be Held

All returning veterans, like all ne employes, should be given careful i struction about the fire alarm syste and the location of fire extinguishe and other fire-fighting equipmen They should also be given an ear oportunity to participate in a fi drill.

Many servicemen have had a par in fighting fires, handling flammabl and explosive materials, etc. The should be encouraged to make sug gestions and tell their experiences t their fellow employes.

Hand fire extinguishers have playe an important part in saving lives an equipment on ships and in planes tanks, and other war vehicles. The ex periences of the veteran may hel other workers to understand the im portance of such equipment and it intelligent use in emergencies.

Where there is a plant fire brigade the veteran may be qualified to join and, in some cases, to take a leading role. In such ways, the veteran no only becomes familiar with the plan fire safety program, but helps t make other workers "fire conscious."

QUIZ — Burner Design

• *This department is a monthly feature to stimulate thought and to give operators basic industry facts. Clip out for your notebook or file in a standard, 3-ring, loose-leaf binder. Sources of information: The Bottled Gas Manual, Handbook Butane-Propane Gases.*

Questions	Answers
1 What is the fundamental principle back of all burner design?	B-P Gas will not burn without oxygen. All burners are mechanical means to mix the proper proportion of gas and air for complete and clean combustion.
2 At what pressure are domestic appliance burners designed to operate?	At 11 inches water column, which is equal to 6.36 ounces per sq. in., or .397 pounds per sq. in.
3 What determines the capacity of the burner?	The capacity of the burner is determined by the size of the gas orifice, the size of the air venturi and the total area of the burner ports.
4 Why can't the capacity of a burner be increased by using a larger gas orifice or increasing the gas pressure?	A burner designed for perfect combustion is properly proportioned for the use of a certain sized orifice which allows for adjustment of the air shutter to give a perfect flame.
5 Will a burner designed and tested for propane operate satisfactorily on butane?	In most circumstances it will as there is usually less than one drill size difference in the theoretically correct sizes required for the two gases. On very small burners or pilot lights it may be necessary to change the orifice one drill size.

6

What is the difference between primary air and secondary air?

The air that is inspirated into the mixing tube by the action of the flow of gas through the venturi is known as primary air. The balance of the air required for complete combustion. and which is supplied outside of the burner, is known as secondary air.

7

How is the amount of primary air controlled?

The amount of primary air is controlled by the adjustment of the air shutter in the burner. Too much primary air causes flash back and flame lifting from the burner.

8

How is the amount of secondary air controlled?

The amount of secondary air is controlled by location of the burner and size and shape of the space in which the burner is located. Insufficient secondary air will cause the flame to "float," with possibility of going out.

9

How can the capacity of a burner be determined?

Manufacturers rate their burners as having a certain Btu per hour capacity. There are tables available in "The Bottled Gas Manual" and the "Handbook Butane-Propane Gases" that give the size orifices required for various Btu outputs.

10

In ordering appliances from the manufacturer what information should always be supplied?

The Btu value of the gas being served should always be given, as the manufacturer is called upon to serve not only the B-P Gas industry but the natural gas and manufactured gas industries, as well, which require different burner design and location in the appliance.

● Appliance Conversion ● Facts About Water and Water Heaters ● Types of Water Heaters ● Selecting, Installing Water Heaters ● Competitive Fuels—Wood, Coal, Oil, Electricity.

Apprenticeship Plan Explained

RETURNING veterans and B-P Gas dealers, as well, are much terested in the new "apprentice-ip" plan that the Government s established. (See Page 24 for at one dealer is doing with this an.)

To provide detail information on this subject, there is quoted re the outline of the plan, as it peared in the February Bulletin the Colorado Liquefied Petro-um Gas Association:

The Government, in order to help terans learn a trade or skilled ork, will contribute $65 if single, $90 if married, toward the vet-an's support during an appren-ceship period up to four years, nder certain conditions of em-loyment. The veteran makes ap-lication to the Veteran's Admin-tration.

"The employer makes applica-ion to the Governor's Advisory ommittee; forms will be sent for uch applications, on which the em-loyer will be required to show onditions substantially as follows:

1. That he is set up to give 'on-the-job' training, as under a skilled foreman.
2. That he has a training program planned in advance, to give the veteran progress in his apprenticeship.
3. That he will report monthly as to progress, advancement, and satisfactory work, on forms furnished for that purpose.
4. That his starting wage (employer's part) is his regular rate for beginners, i.e., approximately 40% to 50% of his wage for skilled work.
5. That he has a regular schedule of increase in pay during the training period—based, of course, on expected progress of the employe.

"Veterans have up to five years after discharge to begin such a training program. The employment may be terminated at any time, by either party, but employer should notify Veteran's Administration, preferably two weeks in advance, with reason for termination.

"This plan may interest some operators for training service men, installation men, and salesmen."

S. C. McIntosh Successor To Gus Strauss on Texas RR

S. C. McIntosh, former chief engineer of the Gas Utilities Division of the Texas Railroad Commission, has been promoted to the position of director of that division, succeeding Gus J. Strauss.

Mr. McIntosh joined the Texas Railroad Commission as an engineer in 1932, becoming active in the butane-propane division in 1938 upon his appointment as engineer in charge of that department.

Resigning to enter private business, Mr. Strauss will operate the Lavaca County Butane Co., with headquarters at Hallettsville, Texas, his former home.

Mr. Strauss joined the Railroad Commission in 1941.

Storage Capacity Doubled By Georgia Dealer

THE Automatic Gas Co. of Columbus, Inc., distributes butane gas and appliances to approximately 600 customers in 14 mid-west Georgia counties. Incorporated in 1940, the company established its first plant at Columbus, Ga. The storage facilities at that plant, at present, consist of one 18,000-gal. and two 10,000-gal. tanks.

The company's second plant is located at La Grange, Ga., where an 18,000-gal. butane tank was installed in 1943 and an exact duplicate added in 1945. Both of these tanks were fabricated at the Birmingham plant of the Chicago Bridge & Iron Co.

A third plant is under construction at Warm Springs, Ga. It will have an 18,000-gal. tank for storage purposes.

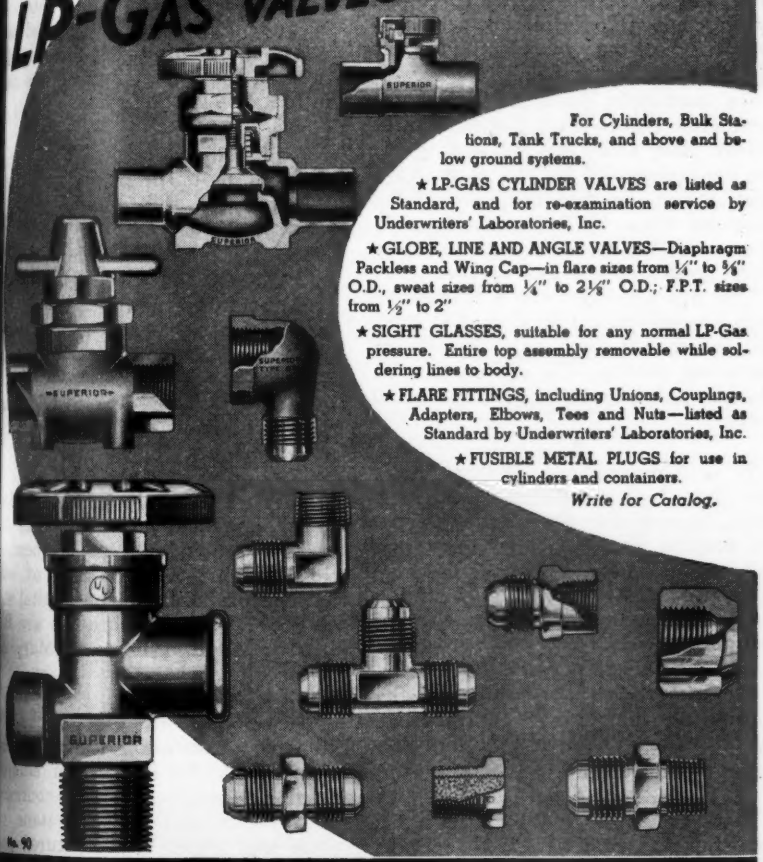
A large percentage of the Automatic Gas Co.'s customers have derground tank installations wi are piped to several appliances. T are serviced by four tank trucks, butane being metered directly the customer's underground tank

The company also has a number customers who use bottled gas. F thermore, they are now featur this type of installation for use w a cook stove and water heater, nishing the appliances complete unit. A 1½-ton stake body truck three pick-up trucks are used to liver cylinders of gas and applian to these customers.

Fred A. Rives, president of company, has his headquarters Columbus.

These two 18,000-gal. butane tanks at the Automatic Gas Co. of Columbus, Inc. plant at La Grande, Ga., are 8 ft. diam. by 49 ft. 2 in. long overall and operate at 125 pounds per square inch pressure.

SUPERIOR
LP-GAS VALVES AND FITTINGS



For Cylinders, Bulk Stations, Tank Trucks, and above and below ground systems.

★ LP-GAS CYLINDER VALVES are listed as Standard, and for re-examination service by Underwriters' Laboratories, Inc.

★ GLOBE, LINE AND ANGLE VALVES—Diaphragm Packless and Wing Cap—in flare sizes from ¼" to ⅝" O.D., sweat sizes from ⅛" to 2⅛" O.D.; F.P.T. sizes from ½" to 2"

★ SIGHT GLASSES, suitable for any normal LP-Gas pressure. Entire top assembly removable while soldering lines to body.

★ FLARE FITTINGS, including Unions, Couplings, Adapters, Elbows, Tees and Nuts—listed as Standard by Underwriters' Laboratories, Inc.

★ FUSIBLE METAL PLUGS for use in cylinders and containers.

Write for Catalog.

SUPERIOR VALVE & FITTINGS COMPANY
PITTSBURGH — 26 — PENNSYLVANIA

OFFICES IN PRINCIPAL CITIES • STOCKS CHICAGO (6) • LOS ANGELES (15) • JOBBERS EVERYWHERE

Arkansas News Notes

By INEZ H. McDUFF

Little Rock, Ark.

Proposals for installation and operation of a municipally-owned propane gas system were placed before civic groups of Forrest City, Ark., Feb, 21, by Mayor Rogers Deaderick, who said that the cost has been estimated at $75,000 to $150,000.

He said that installation can be completed before the 1946-47 winter season and that the project would net approximately $30,000 to the city. Cost would be financed, under the proposed plan, by issuance and sale of revenue bonds, to be retired solely from profits of the gas system.

The city already owns a water and light system valued at almost $1,000,000, which has been paid for out of operating profits. He estimated that the gas plant could be paid for in 20 years.

•

T. G. Cunningham, Helena, Ark., who has been associated with the Delta Butane Gas Co., West Helena, for several years, has resigned and will open his own agency.

He was instrumental in bringing the first butane gas system to that section.

•

J. C. French has purchased the butane gas agency of the Hardwick Furniture Co. at Malvern and is offering sales and service in that territory.

•

H. C. Gregory, recently discharged from the Navy after overseas service, has returned to his position with the Delta Butane Gas Co. in Helena, and Van Powell, who has been in the Army for the past 3½ years, has joined the company's staff of butane engineers.

Caver Brothers Butane Servic
Inc., of Mena, filed articles of
poration at the office of the Sec
of State in January. J. F. Q
of Mena, is resident agent.

Incorporators are W. C. Caver,
Caver and V. C. Caver, all of
Total paid-in capital is $18,000.

Three new trucks were adde
the service fleet a month later.

The company has advertised a
crease in its price of butane.
has had the lowest butane gas d
bution rate in the state.

•

Cecil Bell has opened a butane
business on U. S. Highway 64,
of Conway.

•

The Butane Wholesale Gas C
Little Rock has filed articles o
corporation at the office of the s
tary of state, listing authorized
tal stock of 300 shares, without
value.

B. T. Harris, Mrs Floyd R. H
and R. L. Downs, all of Little R
are incorporators.

•

Harris Distributors, Inc., of L
Rock, liquefied petroleum gas
ers, have filed articles of incorp
tion with the secretary of s
listing total authorized capital s
at $100,000. Incorporators are B
Harris, A. B. Cobb and Mary
Wallace.

•

The city of Rogers has been
strained in an order issued by C
cellor John K. Butt from enfor
a recent ordinance for control
distribution and use of butane,
pane and other manufactured g
within prescribed areas.

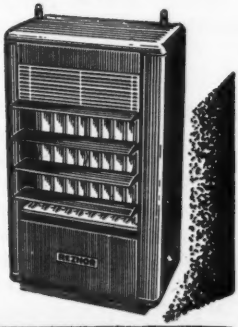
The temporary injunction was
sued on petition of the Cy Ca
Appliance Co., which is attac
legality of the ordinance. No
has been set for hearing on the

"Yes. *Heat where you want it—*"

REZNOR

Gas unit heaters

1. **Will heat ANY size area.**
2. **Economical way to extend inadequate heating systems.**
3. **Easy, low-cost installation.**
4. **Clean, automatic heat.**
5. **Suspended, saves floor space.**
6. **Ideal for modernizing industrial and commercial buildings.**



Propeller fan and blower types. Nine sizes of each.

REZNOR MANUFACTURING CO.
Since 1888
MERCER, PENNA.

NO BOILERS • NO STEAM LINES
NO FUEL STORAGE • NO FIRE TENDING

tion's request for a permanent injunction.

The petition followed action of Mayor J. Frank Smith, resulting in a fine against the company for operating a butane truck within fire zone limits, contrary to terms of the ordinance, which restricts use of manufactured gases in homes within the fire zone, establishes specifcations for such installations in other areas, and forbids operation of tank trucks in the fire zone. Distributors are required to place bulk storage tanks outside the city limits.

The Arkansas Butane Dealers Association has protested enforcement of the ordinance, but is not a party to the suit. B. T. Harris, president of the association, wrote to the mayor in protest at the time the ordinance was enacted, and declared that state laws regulating butane gas distribution afford ample protection

•

T. G. Cunningham, of West Helena, has opened Cunningham's Butane Gas Co., with Johnny Blaine and O. W. King as assistants in the service department.

•

A bulk butane gas plant is being established by the Rison Butane Gas Co. near the Cotton Belt Railway trackage on West Second St., Rison, with three tanks to be installed. Capacity will total 17,000 gallons.

Ray and Roy Martin are owners of the new concern, which began construction last week.

•

A three-day natural gas and butane gas sales and service schools for Servel dealers was held in Little Rock the last week in February by Cross and Rogers, state distributors, with H. J. McFadden, district sales manager for Servel, and Huston Farley, district factory service supervisor, in charge. About 90 dealers and salesmen from all sections of the state attended.

•

O. S. Cash and Gray Seymore, of Pine Bluff, are opening the Warren Butane and Supply Co. to handle butane tanks, heaters, bottled gas, water pumps, sewer systems and stoves.

LPGA Opens Chicago Office

THE new executive offices of the Liquefied Petroleum Gas Association at 11 South LaSalle St., Chicago, are now open, according to Howard D. White, newly appointed executive secretary.

HOWARD D. WHITE

The New York office at 11 West 42 St. will continue under the charge of Franklin R. Fethers-ton, as vice president, technical division, where all technical matters should be addressed.

The Chicago office will be the headquarters office and will provide full service to the membership, in all departments, with the exception of technical considerations. The two offices will work closely together to co-ordinate all activities to the end of practical efficiency in the disposition of all matters for the adequate service of the membership and the promotion of the industry.

Mrs. Cecille Tobin, the Chicago office manager, will be on hand to serve the members in the absence of the executive vice president.

CURRENT READING

Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry. Those interested in reading any complete article or book should write to the publications named.

•

Petroleum to Supply All Butadiene Next Year—H. D. Ralph. "Oil and Gas Journal," Dec. 15, 1945, pp. 70-72. Alcohol has been completely washed out of the synthetic-rubber program, and all butadiene scheduled for 1946 production will come from petroleum plants. The new program just announced by the Office of Rubber Reserve, Reconstruction Finance Corp., calls for approximately 413,000 tons of butadiene from which slightly less than 600,000 tons of GRS synthetic rubber will be made next year. This amount plus some 300,000 tons of natural crude rubber expected to be imported, is expected to meet all demands of rubber-fabricating factories, but there is sufficient flexibility in the program so that the output of butadiene from petroleum could easily be stepped up if demands increase.

Tentative Specifications and Tentative Standard Methods of Test for Liquefied Petroleum Gases, Bulletin TS-441—Published by the California Natural Gasoline Association, 510 W. Sixth St., Los Angeles, Calif. This bulletin was prepared for the use of manufacturers, marketers, and consumers who have occasion to gauge, blend, sample, specify or test LP-Gas products. It replaces the former Bulletin TS-392 which was published in 1939, and embodies new material and improvements in testing and gauging procedures developed since that time.

An entirely new set of tables of volume correction factors for converting observed volumes to volumes at 60°F. is included. This table is based on the latest available information concerning the variation of volumes with temperature of LP-Gas products. A new section has been added on the computation of vapor pressures.

A chart of "Corrected Vapor Pressures" permits more accurate prediction of the vapor pressure of LP-Gas mixtures than has hitherto been possible. A formula is given for use in blending LP-Gas stocks to produce a mixture of specified vapor pressure. Price to members, $1; to non-members, $1.50.

Viscosity of Lubricants Under High Pressure—M. D. Hersey and R. F. Hopkins. "Mechanical Engineering," Dec., 1945, pp. 820-824. This paper describes the first part of a study aiming to coordinate the published data on viscosity of lubricants under high pressure. The objectives of the entire study are, first, to survey what has been accomplished, indicating some of the directions in which future research may be required; and, second, to put the data already available into a more convenient form for practical use. The coordination project has been completed in so far as can be done by plotting, tabulating, and comparing the original published data. Differences in

units and methods of representation have been eliminated. It is evident that further experimentation is needed in several directions, particularly (a) in increasing the pressure range, (b) widening the temperature limits, and (c) taking into account the rate of shear or its equivalent, the shear stress, as an independent variable.

Tight Situation Seen in Supply of Kerosene, Distillate, Residual—S. P. Coleman. "Oil and Gas Journal," Dec. 1, 1945, pp. 61, 63. This article is a digest of a paper presented at the A.P.I. meeting. It deals with two situations. The first is a short-term forecast covering the winter season of 1945-46 and the indicated adjustments of refinery yields necessary in PAW Districts 1 and 3. The second is a long-range forecast covering the world situation to 1965, indicating the apparent major outlines.

A new catalog of technical books has just been issued by The Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y. This catalog includes the latest books on chemistry, physics, science, technology, medicine, foods, formularies, drugs and cosmetics, engineering metals, technical dictionaries, building construction, etc.

This catalog, conforming with the requests of technical and scientific workers and librarians, gives the date of publication of each book as well as price, number of pages, detailed descriptions and full table of contents.

Single-Cylinder Engine Tests of Substitute Motor Fuels, by D. E. Brooks. Research Paper RP 1660, U. S. Bureau of Standards. Single-cylinder engine tests of nonhydrocarbon fuels and gasoline, at fi compression ratio and at the comp sion ratio for trace knock for e fuel, show no material differences performance other than those as ciated with differences in heats combustion and vaporization. All nonhydrocarbon fuels could be op ated at compression ratios higher th was permissible with the gasoli with corresponding increases in pow and thermal efficiency.

Thermodynamic Properties of 1, Butadiene in the Solid, Liquid, a Vapor States, by R. B. Scott, C. Meyers, R. D. Rands, Jr., F. G. Bri wedde and N. Bekkedahl, Researc Paper RP 1661, U. S. Bureau of Sta dards.

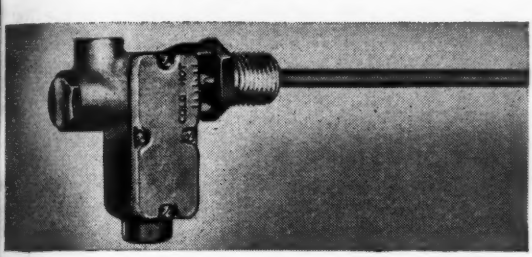
Conversion from Coal Gas to 19 Propane-Air Gas — H. K. Seel "American Gas Journal," Nov., 19 pp. 35-39. The story of the co version of two coal gas plants northern New York State to propan air gas is given in this article.

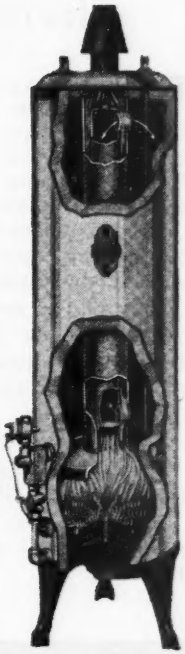
Liquid Fuel Purification — B. Hunter. "Power Plant Engineering Nov., 1945, pp. 130, 132. Chemical a physical qualities of petroleum fue vary widely; Exacting industrial us of liquid fuels call for specification with narrow tolerances; Causes contamination between refinery a point of use; Cleaning Diesel o gasoline and furnace oil just befor use is a recommended practice.

Butane Drier in Alkylation Pla Saves 5 Tons of Catalyst a Da "National Petroleum News," Nov. 1945, pp. R-869, 870. Low-cost, high capacity separator removes 70% total undissolved water content fro feed stock; permits increased outp of pentylene alkylate.

MISSION ENGINEERED

More Hot Water Per Minute *At Less Cost*





MISSION THERMOSTAT

The life of the thermostat is equivalent to the life of the heater. The MISSION is thermostatically controlled for positive shut-off, when water has reached desired temperature. It embodies a temperature selector which permits wide adjustment. It is compact and attractive in appearance . . . important nowadays because the public is "design conscious" on mechanical products.

Mission Water Heaters are especially designed for Liquefied Petroleum Gases

AN EXCLUSIVE MISSION FEATURE

The inner tank circulation feature of Mission Senior exposes over double the normal tank area to heat absorption. Ordinary heaters offer but 3½ sq. ft. of heating surface to direct heat action. Mission Senior brings 8¼ sq. ft. of metal in direct contact with water.

Mission Appliance Corporation

MISSION WATER HEATER CORPORATION

Headquarters PLANT: 7101 McKinley Avenue, Los Angeles, California

Florida Firm Expands Operations

THE rapid expansion of the liquefied petroleum gas industry since the war is having its direct effect upon the L. P. G. Equipment Co., of Florida, because the increased demand for butane-propane gas systems, bulk plants and truck tanks is forcing the company into continuing wider distribution.

This is the statement of E. Reed Whittle, senior partner of Whittle & Co., which uses the name of "L. P. G. Equipment Co." for its manufacturing activities. The head office is at Orlando, with plants located in Archer, Fla., East Point, Ga., and Bessemer, Ala.

Whittle & Co. also operates under the trade name of Green's Fuel System Sales Co., which, since 1939, has been the exclusive supplier of B-P Gas systems for all of Green's Fuel dealers in five southeastern states. About a year ago, Mr. Whittle stated, the L. P. G. Equipment Co. was formed to supply systems in areas where there are no Green's Fuel dealers, and it covers a large portion of the eight southeastern states, exclusive of Florida.

Mr. Whittle also operates the Natural Gas and Appliance Co., a franchise distributor for Green's Fuel gas in central Florida, with showrooms in Ocala, Orlando and Sanford.

The L. P. G. Equipment Co. is state distributor in Florida for Day and Night Manufacturing Co., Mon-

Lt. Com. W. Rayford Conway being awarded the Bronze Star by Vice Admiral T. C. Kincaid.

Hardness

IS AN IMPORTANT FACTOR IN THE BASO

Correct hardness, as determined by the Rockwell Hardness Tester, is a necessary requisite to the manufacture of a BASO. In our own Research and Development Department, BASO materials are subjected to recognized laboratory procedures before being approved for use. This rigid material control means more positive performance of a BASO Thermo-Electric Automatic Pilot.

A BASO Thermo-Electric Automatic Pilot constantly guards your gas-fired equipment. Under hazardous pilot flame conditions, the BASO gives complete, positive protection.

A.G.A. AND U.L. APPROVED • PATENTED

MILWAUKEE GAS SPECIALTY CO., MILWAUKEE 3, WIS.

E. REED WHITTLE

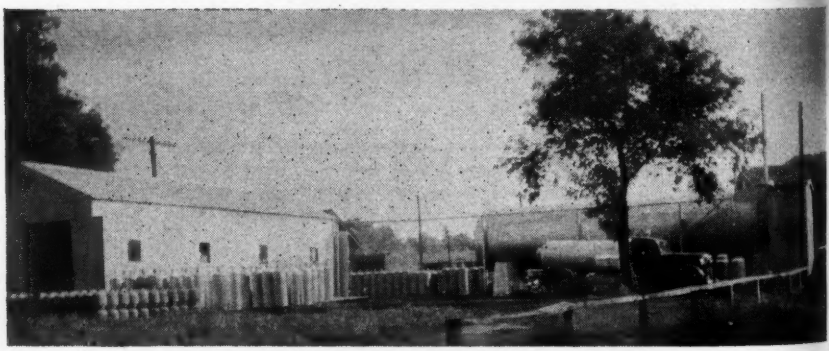
GEO. W. HAMILTON

W. M. SANDERS

CAREY BAXLEY

rovia, Calif., manufacturer of water heaters and space heaters, and in part of the state handle Ward furnaces, Tappan gas ranges, Acme cylinders and Bastian-Blessing parts.

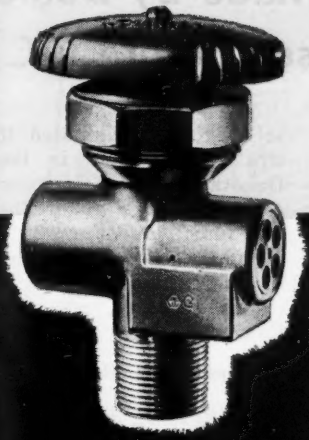
Among others in the organization are George W. Hamilton, engineer, who was formerly engineer with the Army Ordnance for three years; Walter M. Sanders, who was with the Office of Defense Transportation during the war; Carey Baxley, comptroller, who was also with the Army Ordnance for three years; Margaret N. Clark, who has been with the company for five years, and Lt. Com. W. Rayford Conway, who will return to the organization in April as sales manager. He is now Assistant Director of Distribution, handling the demobilization of officers and enlisted personnel for the 7th Naval District in Miami. He spent more than two years in the South Pacific with PT Boats and was awarded the Bronze Star for organization and administration ability by Vice Admiral T. C. Kincaid.



The Tracy, Minn., bulk and bottling plant of the Minngas Co.

Improved

PACKLESS VALVES



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Progress Being Made by Dealers In Weight Cases Before ICC

THE past success of a group of Southeastern dealers in obtaining reduced weights on tank car shipments of liquefied petroleum gas has encouraged several Midwestern firms to appeal for similar relief. A recent bulletin issued by the National Butane-Propane Association reviews the situation to date as follows:

"The industry is one step nearer to finding out whether or not the Interstate Commerce Commission will reduce the estimated weight on tank car shipments of liquefied petroleum gas below the present 6.6 pounds in the Middle West. Guessing when the matter will be settled would be hazardous. A total of five cases have now been heard, and several others have been consolidated with these for decision.

"Docket 29179, Montana-Dakota Utilities Co. v. AT&SF, et al, was the subject of a hearing in Minneapolis in May, 1945. On February 2, 1946, a commission examiner heard testimony in a consolidation of four other cases and the petitions of two intervenors. The cases heard were Docket 29397, Skelly Oil Co. v A&S, et al (in which Omaha Blaugas Co., Omaha, Neb., and Standard Oil Co. of Indiana, Chicago, intervened); Docket 29416, Western Skelgas Service Co., et al, v. AT&SF, et al; Docket 29427, Central Wisconsin Gas Co., et al, v. A&S, et al, and Docket 29438, Citizens Gas & Coke Utility v. AT&SF, et al.

"At the hearing in Chicago, parties to the cases stipulated that the e tire record made in the Montan Dakota Utilities Co. case should considered a part of the record the four current cases. They th added additional testimony to bri the data up to date. Shipper w nesses made a very strong case Chicago.

Companies Have Strong Case

"It appears to us that when t evidence is considered the commi sion has little space in which to shi around in its decision—about the onl ground on which they could deny re lief, in view of the evidence, is tha the basic rate structure itself in th Middle West area is so low that an change in the estimated weight woul unduly upset carrier revenues or re sult only in the necessity of grantin increased rates on a lower estimate weight.

"Carriers followed the same tactic used in the Montana-Dakota Utilitie case of filling the record with wha they considered to be evidence tha transportation of liquefied petroleum gas is a hazardous thing. Under re peated questions by shipping law yers, carriers' witnesses were unabl to testify as to a single damage clai in connection with movement of LP Gas in tank cars. Shippers' attorney asked various railroad lawyers to pu into the record a comparison of gaso line and LP-Gas shipments, showin volume of movement and accident and claim expenses, the railroads de clined to do so.

"While it will be some time before

BUSINESS WEEK • Oct. 13, 1945
Gray Iron Crisis
Shortage of manpower in foundries which hampered out put of castings for war, now creates reconversion bottleneck
Michael

"Mother...pin a rose on me..."

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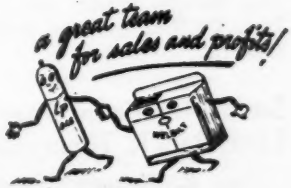

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a decision is reached, there are a number of shippers in the Middle West who have protected themselves in case the commission awards reparation on past shipments. The commission is not permitted to allow reparation for more than two years before filing of a claim. While the likelihood of reparation being awarded is very slim, those who have filed cases as suggested in our Bulletin No. 9 of Nov. 16, 1945, have protected themselves back as far as possible. This advice to file complaints is offered only to those who are in areas covered by the cases which have been heard, principally Western Trunk Line Territory.

"The situation in Eastern, Rocky Mountain and Western territories is the object of present study by National Butane-Propane Association but the association is not far enough along in its investigations to be in a position to offer any advice to distributors in those areas at the moment.

"Cases involving estimated weight on liquefied petroleum gas pending before the Interstate Commerce Commission other than those above referred to have been brought by the following companies: Phillips Petroleum Co., Minnesota Mining & Mfg. Co., Bennett Mining Co., Detroit Lakes Gas Corp., Wahpeton Gas Co., Shell Oil Co., Inc., Sinclair Refining Co., Continental Steel Corp., Northwestern Blaugas Co., Phillips Petroleum Co., Cities Service Oil Co., Mobile Traffic Assn., Fowler Appliance Co., Mobile Traffic Assn., Natrogas, Inc., Cy Carney and Bemidji Bottle Gas Co."

South American Opening Lures Paul K. Thompson

Paul K. Thompson, one time head of the liquefied gas section of the Petroleum Administration for War and now slated for an early departure for South America in the interests of the Standard Oil Co., was guest of honor at an informal farewell dinner tendered him by about 50 of his friends and former associates in the bottled gas industry at the Engineers' Club, New York, on Feb. 15.

P. K. THOMPSON

Mr. Thompson will locate in Rio de Janiero, where he will open up a new merchandising operation in liquefied gas, appliances and equipment for the Standard Oil Co. of Brazil. His address after about the first of April will be in care of the company, Caixa Postal 970, Rio de Janiero, Brazil.

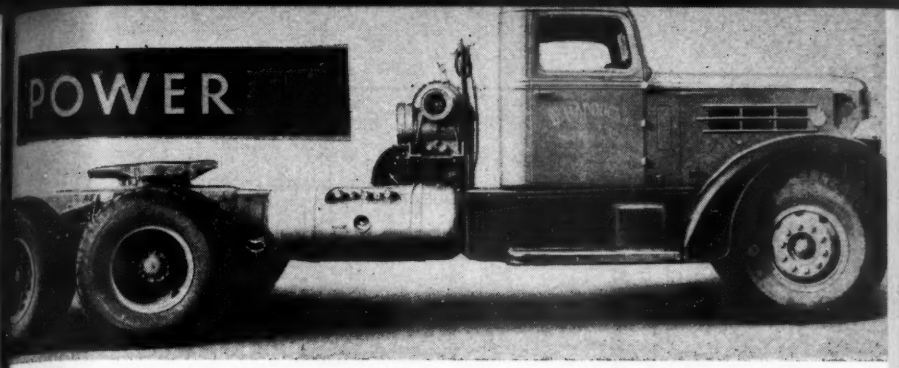
It is expected that this initial step into the distribution of propane in the South American state will be the start of an ambitious and widespread program of expansion if it proves successful.

Robert Rundorff, Gas Expert, Passes Away in St. Paul

Robert L. Rundorff, assistant gas engineer, Northern States Power Co., Minneapolis, died suddenly at St. Paul on Dec. 3 at the age of 46.

After graduating from the University of Wisconsin, Mr. Rundorff entered the employ of Northern States Power Co. with which he had been continuously associated until the time of his death.

An article by Mr. Rundorff appeared in the January issue of BUTANE-PROPANE *News*.



The A B C's of Butane-Propane for Engine Use

By E. A. STRATMAN
Advertising Manager, Ensign Carburetor Co.
Huntington Park, Calif.

In Two Parts—Part 2.

Last month Mr. Stratman presented the first part of this article. He told why butane-propane excels as an engine fuel; gave the characteristics of liquefied petroleum gases; defined terms; explained the principle of converting butane and propane from a liquid to a gas; and showed how engine applications compare with domestic uses.

This month conversion equipment is described in detail, beginning with the fuel tank.—Editor.

The Fuel Tank for Engine Use.

Figure 6 shows a sectional view through a typical butane tank. Some tanks have the fittings on the side and some are end-connected, depending on which arrangement best suits the installation. Since butane is stored and carried as a liquid under pressure, the tanks must be constructed of heavy steel, with ends welded.

Regulations covering the design of storage and utility tanks, mountings, fittings, etc., are incorporated into the laws of many states. All tanks, mountings and fitting equipment must be approved by the state in which they are used. In those states where safety codes have not been set up, the National Board of Fire Underwriters' regulations apply. Write the N.B.F.U.; 85 John St., New York, for Pamphlet No. 58 for complete details.

B-P Gas tanks are never filled 100% full; 10% to 20% vapor space must be allowed above the liquid for expansion. To fill the tank, valve (Item 1, Figure 6), is opened, which allows a small leakage of vapor until the liquid being

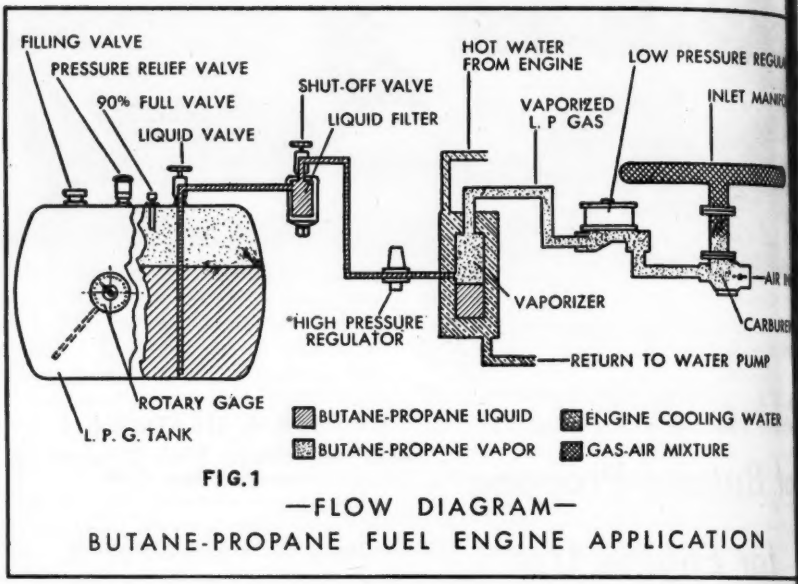


FIG.1

—FLOW DIAGRAM—
BUTANE-PROPANE FUEL ENGINE APPLICATION

Fig. 1 is repeated this month for easy reference. For Figs. 2-5 see February issue.

pumped into the tank reaches the 90% full tube. Liquid butane then spews out of the small opening in the valve. The valve opening is then quickly screwed shut simultaneously with shutting off the fuel transfer pump.

Filler valve 2, Figure 6, is spring loaded and automatically closes when pressure from transfer pump is released. A pressure relief valve (6), must be incorporated in every tank. This assures against tanks bursting should the pressure of propane become excessively high when tanks are subjected to heat.

Frequently, the pressure relief valve is built into hand valve (Figure 7) which, in turn, is opened to atmosphere or connected back to the main storage tank to facilitate filling when gravity, instead of transfer pump, is used. Pressu in the utility tank must be l than in storage tank or it can be filled by gravity from a sm differential head.

Item 4, Figure 6, shows t liquid-to-engine valve connected a tube extending to bottom of ta Rotary gage 3, Figures 6 and 7, equipped with a small bleed orif and bleed plug screw. The ga tube is turned around inside t tank by the handle on the outsi As it swings down from the vap space above and strikes the liqu fuel a small amount of liqu butane spews out of a bleed ope ing controlled in the same mann as the 90% full valve, indicati the liquid level in the tank. graduated dial on the rotary ga reads in percentage.

Fuse plugs, Item 5, must be a part of every tank assembly unless sufficient relieving capacity is provided in the safety valve. When the tank containing butane is subjected to fire, the fuse plugs burn out permitting the high pressure fuel to escape into the fire and burn. The butane burns very fiercely, as a torch, but since no air can enter the tank there is no explosion. The fuse plug is simply a precaution against faulty relief valves.

Butane-propane is not unduly hazardous, its limits of inflammability, or explosive range, being narrower than for other commercial fuels such as gasoline. Nevertheless, one should not smoke or light a match around a butane tank that is being filled any more than doing so while filling a gasoline tank. Safety precautions in the handling of any volatile fuel cannot be over emphasized.

Butane-Propane Filters.

It is highly advisable to use a good grade of liquid filter mounted close to the primary reducing regulator as noted in the various illustrations. Figure 8 shows a section through a well known make of absorption filter. The element comprises an assembly of felt pads mounted on a perforated center spindle through which the filtered fuel flows. Scale from the tank and fittings or dirt or other solids are caught by this type of filter. Foreign material, if permitted to enter the regulators and vaporizer, can be the cause of considerable trouble.

It is also desirable, although not absolutely necessary, to use a fine cloth filtering element on the outlet side of the vaporizer to further assure against any solid impurities entering the final pressure regulator which in most popular makes carries the main metering valve, a synthetic rubber facing bonded to a metal self-aligning valve head. This particular valve is used to lock up the butane system, preventing any leakage when engine is stopped. Therefore, it is imperative the valve face be absolutely clean.

FIRST STAGE

Primary, or High Pressure, Regulator.

In the flow chart, Figure 1, the high pressure regulator is shown ahead of the vaporizer, or heat exchanger. Tank pressure may vary from 20 to 175 pounds. It is the function of the primary regulator to break this down to about 8 pounds uniform pressure before fuel enters the vaporizer. Frequently the primary regulator is built into the vaporizer, itself, as shown in Figure 3. Another system used for many years was to mount the regulator outside the vaporizer where it is accessible and to divert hot water from the vaporizer around the high pressure valve itself as shown in Figure 4. Initial expansion occurs at the point of first reduction in pressure at the volume rate of 270 to 1.

A more or less conventional design of regulator of small dimensions is used. A synthetic rubber seat must be used for liquefied petroleum gases which partly is kept clean by the washing of liquid fuel. The high pressure valve would immediately freeze up under the rapid

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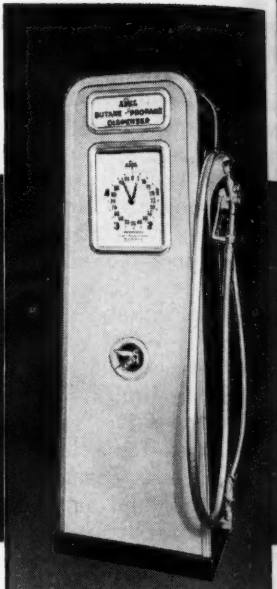

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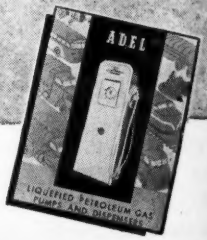


WRITE FOR CATALOG AND INSTALLATION INFORMATION

pansion of gases were it not for e application of heat.

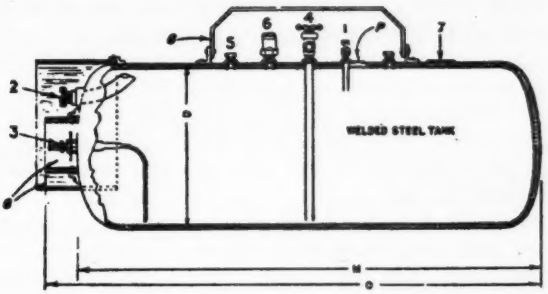
In starting a cold engine there is outside heat for vaporization. he question is frequently asked, Won't the unit freeze up on start-g?" This seldom happens be-use with a cold engine there is ill a sufficient differential in tem-erature between the extremely old expanding butane and the arts surrounding the expansion alve which provides latent heat r vaporization.

This differential in temperature more than ample in nearly all es to vaporize the butane and prevent freezing within the unit until the engine water temperature, controlled by a thermostat, begins to heat the vaporizer and primary valve. Gasoline, or other auxiliary fuel, is not required to start an engine intended to run on butane. The carburetor, itself, contributes greatly to easy starting and will be referred to in the fourth and final stage.

SECOND STAGE

The Vaporizer or Heat Exchanger.

As stated in Stage 1, heat must be applied to vaporize the butane and to prevent freezing of high



Net Gals. Butane	D	M	O
19	12	56	60½
32	14	56	60½
33.5	16	46	50½
43	16	58	62½
61	20	54	58½
83	20	72	76½
106	20	92	96½

No.	Fitting	Std. Pipe Size
1	90% FULL VALVE	¼"
2	FILLER VALVE	1¼"
3	ROTARY GAUGE	¾"
4	LIQUID TO ENGINE	¾"
5	FUSEABLE PLUG	½"
6	PRESSURE RELIEF VALVE	¾"
7	MFGR'S. NAME PLATE (REQUIRED ON ALL TANKS)	. . . .
G	GUARDS	. . . .
P	ALL TANK OPENINGS MUST HAVE NAME PLATES	

ASME CODE: UNFIRED PRESSURE VESSELS, PARAGRAPH U-69. REFER TO NBFU PAMPHLET 58, DIV 2. 7/15/39.

Fig. 6. Butane-propane tank with fittings for mobile use.

pressure valve and surrounding parts. Many devices have been experimented with for applying heat, including engine exhaust as well as an outside source of electrical energy. However, to date the most widely used method is to take hot water from the engine cylinder head and direct it first around the expansion valve, then around heating coils built into the heat exchanger for thoroughly vaporizing the expanded fuel. The vaporizer outlet water is piped to the intake side of the engine water pump to assure good circulation.

Approximately 100 gallons per hour water flow through a vaporizer will handle 150 horsepower very nicely with a water temperature differential of about 10° F. The vaporizer should be equipped with a water drain for removing dirt and sediment and to drain off water whenever radiator is drained to prevent freezing from atmospheric temperature.

In many designs both the high pressure and final metering regulator are built into the vaporizing unit, as shown in Figure 3. This type is popular for trucks and tractors. It may be removed easily and placed on a bench for servicing. Usually, cost of the equipment is a little less when the three stages of high pressure regulation, vaporization and low pressure control are built in one.

THIRD STAGE

Final or Low Pressure Regulation.

Whether this third stage is built into the vaporizer, as in Figure 3, or is a separate regulator unit itself (Item 6, Figure 4), its function is identically the same and th result usually achieved in the sam manner. The purpose of the fi regulator is to further reduce th pressure of the vaporized butane slightly below atmospheric (abo ¼-inch water column below atmo sphere) at its outlet. Generall speaking, the final regulator serve the same purpose with dry gas a the float bowl of a gasoline car buretor does with gasoline; it accu rately regulates the supply of ga to the carburetor and it shuts o the supply of fuel when the engin is stopped.

Various designs of low pressure regulators are used, most of them conventional. Two popular type are illustrated herein. Figure shows a vaporizer with a single large diaphragm built on the back in which case the diameter of th vaporizer worked out well for th regulator. A connection direct t the carburetor is made as shown.

Figure 4 illustrates a type o final regulator complete in itself a separate unit. It is small and in corporates twin diaphragms, known as the differential type of regu lator. This design is ideal for sta tionary engine use and is equally well adapted to natural gas as t butane.

The final regulator contains th idling system. While it is true that most fuel used for idling enter the carburetor through the main gas orifice, nevertheless an addi tional and supplemental amount i taken from the final regulator an by-passed to a point in the carbu retor directly above the throttl disc. The idle adjustment is in thi line, Figures 3 and 4. This sourc

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of idle fuel is independent from the main gas supply to the carburetor and it is controlled by an entirely different system. The two sources of idle fuel combine to make a most excellent idling system which blend together and register most accurately with the engine need.

The final regulator, sometimes called the "metering" regulator, is actuated by engine "suction." This "suction," or partial vacuum, is created by the downward movement of an engine piston on the intake stroke and opens the final fuel regulator sufficiently to allow just enough fuel to pass along to the carburetor to run the engine accoding to the throttle opening.

Both the regulator and carburetor are designed to work together. One is useless without the other. Together, they must produce automatically and instantly exactly the correct air-fuel ratios for every engine demand. Fuel mixtures must be right on the beam — rich for heavy loads—12.8 or 13.4 parts of air to one part of fuel. And leaner for cruising—14 or 14.5 to 1. In fact, the carburetor and regulator working hand in hand together must almost anticipate, as it were, the engine's next requirement. A vast multitude of engine variables are balanced out one by one in the carburetor manufacturer's laboratory before satisfactory performance can be assured for any and all operating conditions.

FOURTH STAGE

Carburetion.

The fourth and last stage in the sequence from expanding liquid butane to mixing the butane vapor with correct volumes of air is the carburetion. As stated, the carburetor is closely related to the final regulator and with the two in perfect harmony, air fuel ratios are automatically controlled for greatest power, economy and flexibility. In addition to proportioning fuel and air, the carburetor must mix the two. The mixing function is most ideal when there is least stratification of fuel in the mixture, this being influenced by carburetor design itself.

Another very desirable feature of the carburetor is that it permits easy starting of the engine on butane. Starting mixtures are best when slightly rich; however, with B-P Gas the limits of inflammability are quite narrow, meaning that it is easy to produce too rich or too lean a starting mixture, resulting in prolonged cranking and worn out starting batteries.

Carburetors shown in Figures 3, 4 and 5 are equipped with easy starting devices, comprising in effect, a small, separate, air-gas mixing device by which a predetermined starting mixture is put into operation with one pull of the choke. When the choke is released the "Easy Starting Device" is rendered inoperative and the main carburetor air-fuel orifices come into effect. A separate adjustment is provided on the carburetor for easy starting mixtures.

Carburetors designed for butane-propane only, may be used in either the updraft or downdraft position. With dry gas it matters little in what position the carburetor is mounted. Figure 3 illustrates a combination gasoline and butane

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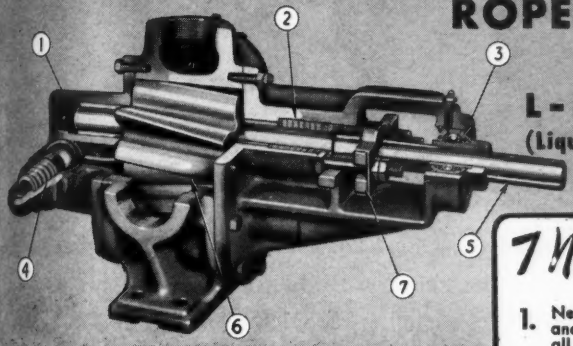

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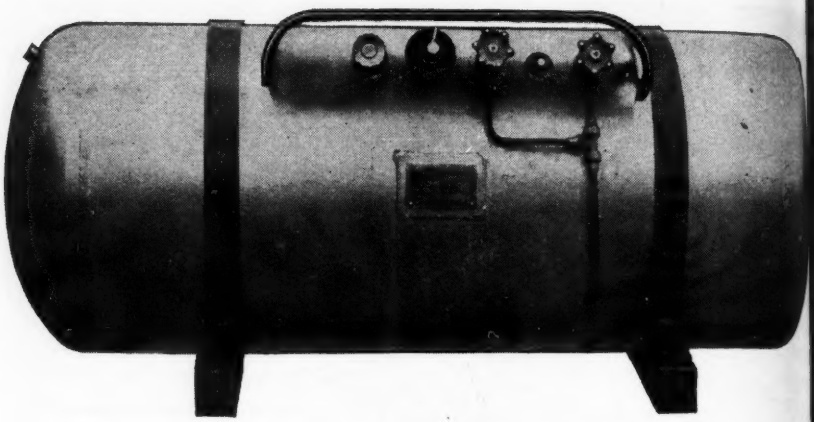


Fig. 7. Typical mounting and fitting arrangement on mobile utility tank.

carburetor for downdraft operation only. This model is extremely popular in the automotive and trucking field. The combination carburetor is a dual purpose unit consisting of a straight butane carburetor with the addition of a gasoline float bowl and jets using a venturi and throttle tube common to both fuels. Provision is made to shut off either fuel and run on the other. A fuel economizer actuated by manifold vacuum may be applied to the carburetor to reduce fuel consumption at cruising for automotive, truck and bus installations.

THE ENGINE

Necessary Modification for Best Performance and Economy.

Engine Compression: Efficiency with butane increases with increased engine cylinder compression up to ratios of 9 or 10 to 1. It is not practical to convert an engine with cylinder compression under 90 pounds unless the compression is raised. It is recommended that the compression be from 100 to 150 pounds gage, depending somewhat on the bore of the engine and design of combustion chamber.

Ignition: Ignition timing also varies somewhat with the individual engine according to compression ratio, combustion chamber design and spark plug location. This must be determined for each particular engine. As compression ratio is increased, the load on the ignition system is greatly multiplied, making it necessary that all ignition equipment be kept in the best condition. Colder spark plugs are generally recommended when changing from gasoline to butane.

Intake Manifolding: Intake manifolds should be modified to function at colder temperatures when butane is used. Exhaust heat

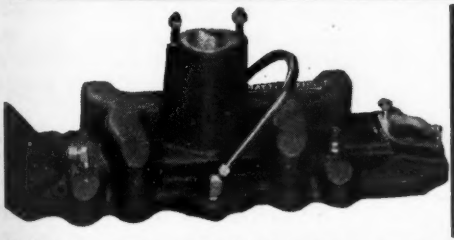
should be removed or special cold manifolds procured. In event the engine is equipped with "combination" butane-gasoline carburetor, a manifold compromise may be necessary which favors the type of fuel most used.

Water Jacket Temperatures and Engine Lubrication: Water jacket temperatures should be maintained over the same range recommended for gasoline use; namely, between 160° and 180° F. for high speed, lighter engines and correspondingly lower for large, stationary engines. Accurate thermostats are available for temperature control. As has been previously stated, dilution of crankcase oil is entirely eliminated and very little carbon, if any, formed when butane is used. Therefore, a lighter grade of lubricating oil may be used.

The subject of engine modification is a very broad one. It has been presented on numerous other occasions and will not be repeated here. However, it will be seen from the foregoing that there are several important factors to consider both in modifying an engine to derive the maximum benefit from the B-P Gas and in the correct selection and adaptation of the butane equipment.

In conclusion, it may be stated with respect to fuel economy, one might expect approximately the same miles per gallon on butane as with gasoline when the engine compression has been raised at least one ratio and when the mani-

TATTERSFIELD



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2323 E. 8th Street ***"Pioneers of the Butane Industry"*** **Los Angeles 21**

fold has been "cooled," colder spark plugs provided and engine properly adjusted with an exhaust gas analyzer. Ordinarily, one would not expect mileage equivalent to gasoline without taking these factors into account, but with lower cost per gallon of butane a fuel saving still may be made. A decided advantage lies in lower oil consumption and reduced engine maintenance.

When the engine conversion is properly made, including raising engine compression, removing heat from inlet manifold, using colder spark plugs and with butane equipment properly installed, the end result is a most satisfactory a highly economical performan from butane—this finest of mot fuels.

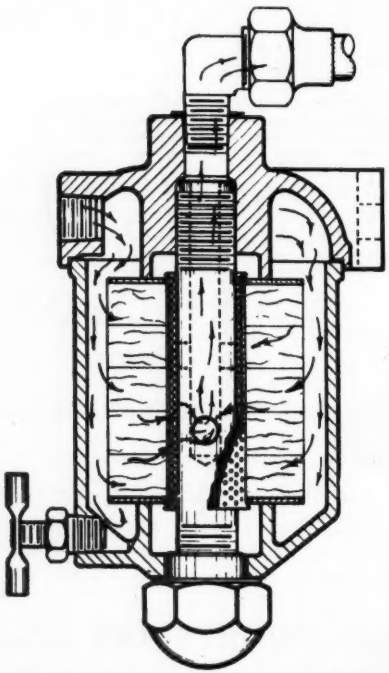


Fig. 8. Liquid butane-propane filter.

Butane - 4 to 1 - Dealers Specify

"OUR company has received flood of orders for heavy-du engines since the war and it is note worthy that over 75% of the operato specify butane."

Such is the recent significant state ment of L. S. Scott, secretary an sales manager of the Hall-Scott Mo tor Car Co., Berkeley, Calif. Refer ence is made specifically to what i termed the company's "400 series, an illustration of which appears upo this page.

Here are some of the truck manu facturers who are placing orders fo the B-P Gas engines referred to abov which will installed in their factory engineered chassis and offered through their respective branches t the trucking trade throughout th United States:

Kenworth Motor Truck Corp. Peterbilt Motors Co.; Dart Truck Co. Euclid Road Machinery Co.; Inter national Harvester Co.; Sterling Mo tor Truck Co., and Crown Body an Coach Corp.

Several features regarding Hall Scott engines of prime interest to th trade are:

A saving of 700 lbs. in engin weight alone, over engines developing even less power. (2190 lbs. complete equipped).

Greater mileage before major over hauls are necessary.

Greater power to negotiate grade at nearly automobile speeds, thus sav ing time between points without th

WARREN

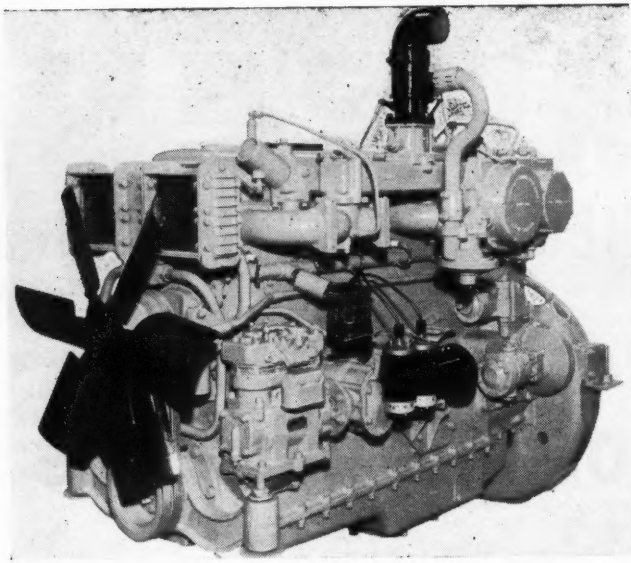
LIQUEFIED PETROLEUM GAS

WHAT HELPS OUR CUSTOMERS HELPS US

Operating under the traditionally sound policy that what helps our customers helps us, Warren has never spared time, money or effort to insure prompt delivery of uniform quality products from the most modern plants. We took our wartime responsibility seriously; expanded our facilities to meet military needs for Liquefied Petroleum Gases with as little inconvenience as possible to our regular customers. Now, Warren's organization is privileged to work with you in meeting your present needs and planning for the future.

We invite your inquiries.

WARREN PETROLEUM CORPORATION
TULSA, OKLAHOMA
Detroit, Michigan Houston, Texas



Hall-Scott heavy
engine (Dart
factory built for
with butane or
pane.

necessity of overspeeding on level or down grades.

The use of clean fuel, eliminating disagreeable smokes that is becoming a nuisance and even a hazard on our highways.

Due to the Hall-Scott system of filtering and cooling the oil, greater mileage is obtained before oil changes are necessary.

Century Convertor

A new convertor, or heat exchanger, used on internal combustion engines has been developed by the Century Gas Equipment Co., 11188 Long Beach Blvd., Lynwood, Calif.

It is suitable for tractors, light trucks, passenger cars, pumping or electric light plants and all internal combustion engine applications up to 125 h.p.

Known as the "Model J" convertor this is a 2-stage unit with the lock-off feature built in. It has an entirely new valve action to allow free flow of sufficient fuel.

It is 6 inches in diameter and i
small size makes it possible and ea
to install in limited space without t
need for building up extra bracket
The working parts are easily acces
ible, particularly the high pressu
valve, removable from the outside.

This unit operates with all Centur
carburetors without change.

Can Toasters sell more L. P. gas?

Very definitely, yes

they are Savory L.P. Gas Toasters, the toasters which ll produce *crisp, delicious, evenly browned toast* for ur commercial cooking customers at a cost of only nnies *per hour.* These modern appliances solve the oblem of serving fresh hot toast *fast* during peak or f-peak periods and their efficiency helps prove the vantages of gas for all commercial cooking. Every ne you install a Savory you *add a potent salesman* your organization.

If you are merchandising appliances and if you have alized the potential gas market offered you by outpost ns, roadside restaurants, hotels and other food service tablishments, write today for Savory information. Pro- ction is in high gear and a profitable arrangement is ady for you.

Model PD Gas operated, 6 slices per minute

Savory
EQUIPMENT, Inc.

137 Pacific Street, Newark 5, N. J.

SOLD BY LEADING DEALERS EVERYWHERE

Greenwood S. C., Converts Water Gas Plant to Propane-Air

The municipal gas plant of Greenwood, S. C., converted from water gas to liquefied petroleum gas on Feb. 8, 1946, according to F. W. Chapman, superintendent of public works.

Propane-air gas is being sent out at 850 Btu from equipment consisting of two 18,000-gallon tanks and Eclipse injectors, with Cutler-Hammer thermeter for Btu checking and control.

For the first two weeks after conversion, the Btu has not deviated more than about 1% from the 850 Btu standard.

The conversion of the customers' appliances worked out very smoothly. New gas was put in on Feb. 8, at 12 o'clock noon and by 4 p. m. of the 9th only a few complaints had been received. All customers are n converted and are highly pleased w the operation of the new gas and greatly improved service.

The Rulane Gas Co. of Charlot N. C., engineered all equipment a with the help of the local gas op ators, handled all installation wo

O. L. Crawford Will Build Tanks at Shawnee, Okla.

O. L. Crawford recently beg manufacturing B-P Gas abovegrou and underground tanks under t firm name of the St. Louis Machi and Welding Works, of Shawne Okla.

His application for a license in t fire marshal's office shows that h employs 12 welders and that his sh is located at 717 Shawnee Ave., Shawnee.

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Check enclosed ☐ *Please send bill* ☐

NAME _____ POSITION _____

COMPANY _____

STREET _____ CITY _____ ZONE _____ STATE _____

New Products

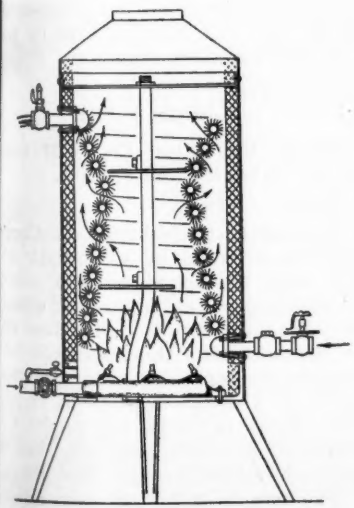
Steam Generator

DAIRY EQUIPMENT CO., 2238 San Pablo Ave., Oakland, Calif., distributors.

DESCRIPTION: Unique, small, compact hot water and steam generator. The "Instansteam" consists of a well insulated jacket, a high capacity Thermek heating coil and a compact 20-tip burner which burns LP-Gas. Efficiency is so high in this inexpensive unit that cost of operation is very low.

Made only in one size, 6 h.p., at present, the unit is extremely simple and may be operated by anyone. It measures 36" high by 13½" in diameter and weighs 90 lbs. Larger sizes are now being designed for production.

The body is red enamel and the hood and legs aluminum, set off with chrome bands at top and bottom of the casing.



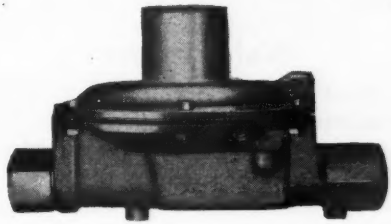
Designed and manufactured by the Thermek Engineering Corp., 555 Bryant St., San Francisco 7.

LP-Gas Regulator

L. C. RONEY, INC., 511 South Redondo, Inglewood, Calif.

MODEL: R-400 All-Service regulator.

APPLICATION: Covers the usual range of domestic, commercial, or



industrial low pressure gas demands in one compact unit. Reduces LP-Gas container pressure to a nominal low pressure of 11 in. W. C. and is applied as single stage regulator for either propane or commercial butane, or a second stage regulator in flash vaporization systems.

DESCRIPTION: Body and bonnet is high strength but light weight aluminum alloy casting, streamlined to contours of diaphragm and other internal parts. The valve is a hard composition synthetic, shutting off against brass P.O.L. nozzle. The internal relief valve, also brass, is seated on synthetic rubber diaphragm by means of spring pressure. The yoke and lever, which transmit motion from diaphragm to valve, are steel plated stampings. A brass tube carries the flowing gas through the reg-

ulator independent of the pressure controlling gas under the diaphram. A venturi at the tube outlet controls pressure under the diaphram in accordance with gas demand. Outlet is ¾ in. I.P.S., inlet connections standard P.O.L., and regulator body, itself, may be attached to standard bracket for mounting.

PERFORMANCE: Furnishes liquefied petroleum gas service up to approximately 500 cu. ft. per hour at no drop in outlet pressure over a wide range of inlet pressures. For additional information write for Roney New Product Bulletin No. 1.

Water Heater

Ruud Manufacturing Co., 2934 Smallman St., Pittsburgh 1, Pa.

Model: Six Hundred Series, Nos. 620, 630, 640.

Description: The Six Hundred Series is thermostatically controlled to give full-automatic service. Three models built in 20, 30 and 40 gallon tank sizes for natural, manufactured and B-P Gas. Fast heating is a prime feature. All models have center-flue construction and glass-wool insulation. They are compact in size, are finished in porcelite. Construction is rugged.

Pipe Joint Compound

LAKE CHEMICAL CO., 607 N. Western Ave., Chicago 12.

TRADE NAME: Pipetite-Stik.

DESCRIPTION: This new pipe joint compound in stick form comes in a carton containing 36 sticks.

Laboratory tests for effectiveness when used with LP-Gas, gasoline, oil and freon showed that no leaks occurred under high pressure in the 24 hour period.

It withstands butane and propa
Joints can be disconnected ea
months and years after applying.
lubricates and completely seals p
joint threads, nuts, bolts, gask
turnbuckles, etc. Cannot flow i
and clog even the smallest size pip
Withstands vibration, temperat
changes, deflection and pressu
Joints can be remade without havi
to clean the threads.

Contains no lead, nor injurious i
gredients, and may be used for fo
and refrigeration piping.

Check Valve

**Grove Regulator Co., 6557 Gree
St. at 65th, Oakland 8, Calif.**

Model: Chexflo.

Description: Operation of Chexf
valve is effected by a synthetic ru
ber tube stretched over a slotte
cup-shaped metal core, which expand
to open and contracts to close. Du
to the fact that this expansible tub
closes instantly on balanced flo
prior to the commencement of bac
flow, there is never any tendency
establish pressure impulses, shock
water hammer through flow line.

The flexive tube possesses uniform

DAY & NIGHT

FIRMLY ESTABLISHED

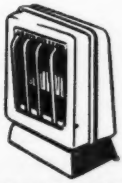
in Public Confidence, Acceptance and Demand

Day & Night Dealers in the postwar years will have the most complete line of water and space heaters on the market. ☆ Just the name "DAY & NIGHT" on an LPG water, space or wall heater is ***enough*** for the vast majority of buyers. They have implicit confidence and an expressed strong preference for DAY & NIGHT products . ☆ This widespread public acceptance and demand are solidly built on more than a third of a century of continuous advertising for dealers . . . and honest prices, value and performance for users. ☆ Prepare now to earn bigger postwar profits. To become a DAY & NIGHT Dealer contact your jobber now. If he does not handle DAY & NIGHT products, write us direct,

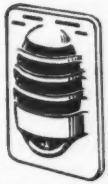
AMERICA'S FINEST TODAY—GREATEST TOMORROW

WATER HEATERS

CABINET HEATERS



PORTABLE HEATERS



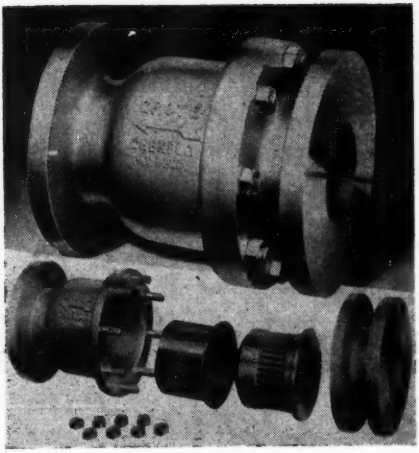
WALL HEATERS

PANELRAYS

DAY & NIGHT MANUFACTURING CO.

MONROVIA · CALIFORNIA

One of the Dresser Industries



and constant spring rate which avoids inertia being set up to cause operation beyond flow requirements. It improves in service as "flexing" adds life to rubber. Because of self-compensating and wear resistant factors the unit is particularly suited for handling the most highly corrosive and erosive air, gases or liquids. Valve uses no metallic moving parts. For details write for Bulletin 610.

Valve, Fittings Catalog

A complete line of refrigeration and air conditioning valves, fittings and accessories is described and illustrated in a new 16-page Catalog 45-R, published by **Kerotest Manufacturing Co., Pittsburgh 22, Pa.**

All types of valves and fittings are well illustrated with many interior views and line drawings showing the inner sections and working parts, in full detail. Pertinent specifications are given with each valve, fitting and accessory, together with list prices and catalog numbers, for easy ordering.

Water Heater

UNITED STATES HEATER CO
Box 629, Compton, Calif.

DESCRIPTION: Development of new series of automatic storage gas water heaters has been announced.

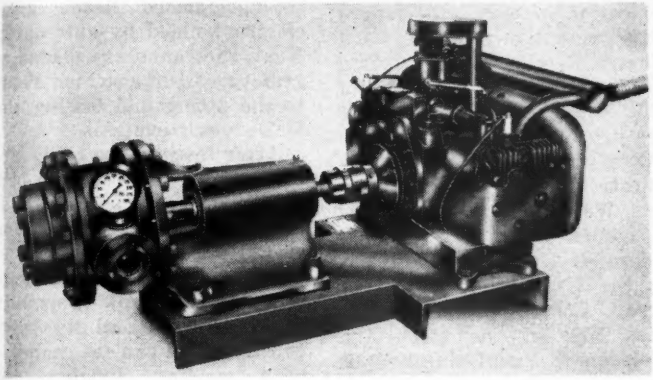
Improved fabrication methods, new thermostat controls, new safety pilot controls and new burner design have been embodied.

Notable among these developments is the Model No. 12 action thermostat. It features compact, yet heavy and rugged, body casting design, accessibility for field service adjustment, simplified integral combination pilot valve and main gas valve, and radio dial temperature indicator. This patented thermostat incorporates a principle of operation proved over 25 years of successful use nationally on every type of gas.

Another engineering accomplishment is the perfection of a 100% combination pilot and burner control which consists of two valves synchronized to close positively and simultaneously, when the pilot flame is extinguished from any cause.

Here's the Answer

To your **NO MOTOR - NO ELECTRICITY** *problem*



Vapor-Safe Gasoline Engine Driven

TURBINE TYPE PUMP

- **Pumps 60 GPM when unloading TANK CARS or TRANSPORTS**
- **Pumps 50 GPM loading bobtails**

May be utilized to fill bottles

$360.00

F. O. B. OKLA. CITY

Since this pump performs at 1750 R.P.M. and engine mount is adaptable, an electric motor can be installed, when available, if desired.

Office & Warehouse
206 E. GRAND AVE.
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CORKEN'S
L. P. GAS EQUIPMENT DEPT.

O. K. CORKEN
CHAS. M. CORKEN
Ph. 7-6517 LD 765

Central American Firm Sets Up For B-P Gas Distribution

Liquefied petroleum gas is being distributed in Central and South American countries in increased volume since the war.

One indication of this is evidenced in a letter recently received from Ruben Castro Beeche, of the Castro Zeledon Co., Ltd., San Jose, Costa Rica. This letter is quoted below:

"We are just beginning to introduce 'Essotane' in Costa Rica, especially as a domestic fuel for cooking purposes, etc. We have organized a new company, named 'Compania Nacional Distribuidora de Gas, Ltda.' In this company, the Esso Standard Oil of New Jersey, Central American Division, has 50% of the stock and Castro Zeledon & Cia, Ltda, 49% of the stock.

"We are beginning our operations with bottled gas and we expect to develop a very large volume of business in a short time."

Line Production of Tanks Opens at McDonough Steel Co.

Increased production and delivery of butane, butane-propane, and propane transit and storage tanks by the McDonough Steel Co., Oakland, Calif., is seen in the company's inauguration of a line-production system for fabricating the tanks.

"Although this new line is less than one month old," Patrick W. McDonough, head of the firm bearing his name, emphasizes, "we are now turning out 20 tanks per 8-hour shift and expect to reach 30 tanks when the line is modified slightly."

The gravity and automatic welding plan for this line provides a gravity rail line bringing tube forms to the automatic seam welder. The seamed tubes are then lifted onto another gravity rail-line, which delivers them to the tank head welding division.

"This point on the line provides a welding bed with transverse rollers which permit the tank to be revolved or moved to the left or right. Here the preformed heads are likewise electric welded by automatic welders. Next, the tanks are placed on a third gravity rail-line, which returns them to the fitting and testing sheds," Mr. McDonough explains.

After testing, the tanks are cleaned and painted according to order specification and can be quickly loaded on rail cars or trucks for prompt delivery.

This automatic line supplements the spherical tank assembly division at McDonough and the larger cylindrical tanks can be handled in the head welding division, where the welder track unit can be expanded to a 15-foot diameter and the track system permits seam welds up to 22 feet.

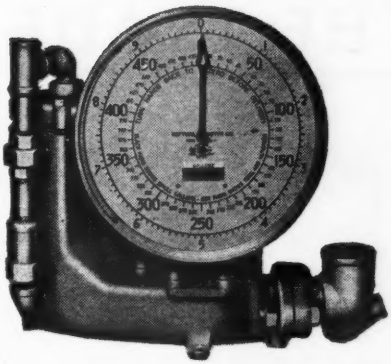
The McDonough organization is currently expanding its field engineering force and plans to have at least three field engineers serving the western territory by the time the new production line hits top efficiency.

Harold Massey Is Appointed Assistant Manager of GAMA

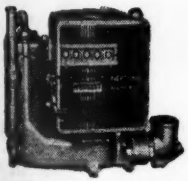
Harold Massey has been appointed assistant managing director of the Gas Appliance Manufacturers Association, H. Leigh Whitelaw, managing director, has announced.

The appointment of Mr. Massey is in line with the Association's expanding program of assisting dealers and utilities in the promotion of gas as a fuel and in developing increasing markets for gas appliances and equipment.

PROVED
counter measure against PROFIT LOSSES



Take the uncertainty out of measuring LP-Gas and you put certainty into your profit. Neptune Red Seal Meters installed on tank trucks, dispensing units, and bulk storage tanks, give you positive control of all gallonage handled—accurately record all flow—eliminate overmeasure. At the same time these dependable LP-Gas Meters reduce handling effort and permit faster truck loading and delivery operations. And for reliable receipts of all gallonage delivered, there's the Print-O-Meter Register for Neptune LP-Gas Meters. Bulletin 779 tells all about Neptune Red Seal LP-Gas Meters. Get your copy. Write today.



Neptune Red Seal Meters are precision-engineered and built to measure LP-Gas with unsurpassed accuracy. Long-life measuring chamber has only *one* moving part—the piston. 1¼ Inch "Compact Type" 1D Meter shown above has easy-to-read Round Dial Register. The same size and type is shown at the left but with Print-O-Meter Register that prints an accurate receipt of all gallonage delivered.

NEPTUNE RED SEAL METERS

NEPTUNE METER COMPANY
50 West 50th Street, New York 20, N. Y. *Branches:* Atlanta, Boston, Chicago, Dallas, Denver, Kansas City, Mo., Los Angeles, Louisville, Philadelphia, Portland, Ore., San Francisco, and Long Branch, Ontario A647

THE TRADE

JOHN C. HART

After serving in the armed forces for three years, John C. Hart has returned to the Neptune Meter Co. as sales engineer, with headquarters at the Kansas City office.

Mr. Hart, who was a first lieutenant, completed 27 missions as a B-17 navigator with the Eighth Air Force.

He is well equipped to handle his new position as he worked for Ne tune for three years before enteri the Army in 1942.

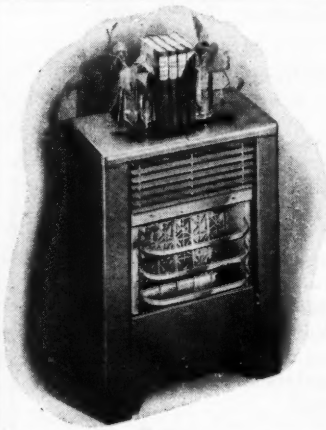
Louie M. Preedom has joined t Neptune Meter Co. in the capaci of sales engineer, with headquarte at the Dallas office.

Mr. Preedom is a veteran of Wor War II, having served in the U. Army heavy artillery for five yea and attained the rank of major.

American Car and Foundry Co. a nounces three newly elected vice pre idents to its sales staff to assist R. Williams, vice president in charge sales.

W. Lyle Richeson, formerly an a sistant vice president, has been wi the company for 20 years.

Frederick H. Norton came to AC in April, 1945, as an assistant vi president in the sales department. H



FEATURES THAT SELL

A.G.A. Approval, Hi-Crown Burners, Automatic Lighting, Syphonaire Chassis, and Air Insulated Cabinets are features your customers want. Finer —Safer heaters, yet priced unbelievably LOW. Write for literature.

DEARBORN

WORLD'S FINEST...SAFEST

L. P. G. GAS HEATERS

A complete line of Vented and Unvented Quality heaters. Their Ultra Smart Appearance, Outstanding L.P.G. Performance and many Exclusive Features create unprecedented user enthusiasm. You are assured satisfied customers and decidedly lower service costs when you sell this fine line.

BUT. NAT.
PRO. MFG.
MIX. GAS.

FAMOUS HI-CROWN BURNER

BLUE FLAME PILOT LIGHT

Leading L.P.G. Distributors from coast to coast rate it the finest of all burners for Butane. It "performs" without coaxing, constant cleaning or adjusting. Its quiet, odorless operation, great flexibility and reserve capacity insures your customers being completely satisfied.

DEARBORN STOVE CO.

3256 Milwaukee Ave.
CHICAGO, ILL.

3625 S. Grand Ave.
LOS ANGELES, CALIF.

ECONOMY SPHERES

A.S.M.E. Code constructed with standard approved fittings. Now available for storage and transport of either Butane, Butane-Propane mixtures, or Propane. Capacities of 150-250-430-1000 water gallons for above ground installations and truck mountings. Write for details.

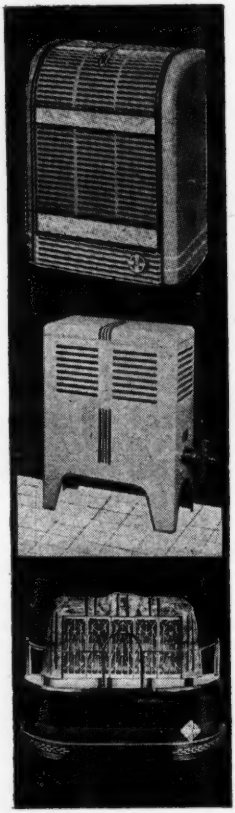
TANKS BY BANKS

DALLAS TANK Company, Inc.

201-5 W. Commerce St. - P.O. Box 5387 - Dallas, Texas

PLACE ORDERS NOW
for Earliest Delivery

Through the war years, our reconversion plans were set for a rapid turnover to civilian goods. Now we're in full swing on peacetime production. Don't delay! Ask your jobber about the popular Armstrong heaters and place your order now.



- **No. 900 Circulating-Radiant Heater.** Designed for proper combustion to produce both radiant and circulating heat. Brown porcelain enamel finish 19" high, 18,000 or 28,000 B.T.U.

- **No. 10-C Bathroom Heater.** 1-piece body finished in white porcelain enamel. Cast iron burner, adjustable air mixers. 14½" high.

- **No. 690 Radiant Heater.** Finished in brown vitreous enamel. 17¾" high. 20,000 or 24,000 B.T.U.

ARMSTRONG PRODUCTS CORP.

Quality Since 1899

Dept. PB **Huntington, W. Va.**

graduated from Purdue Univer with the class of 1932.

Philip A. Hollar attended the C negie Institute of Technology Purdue University.

Mr. Hollar will assume direction sales activities in the western te tory, embracing the Chicago, St. L St. Paul and San Francisco offices.

Mr. Williams stated that J. H. W Moss will continue as western s manager in direct charge of the C cago district, reporting to Mr. Hol who will make his headquarters Chicago.

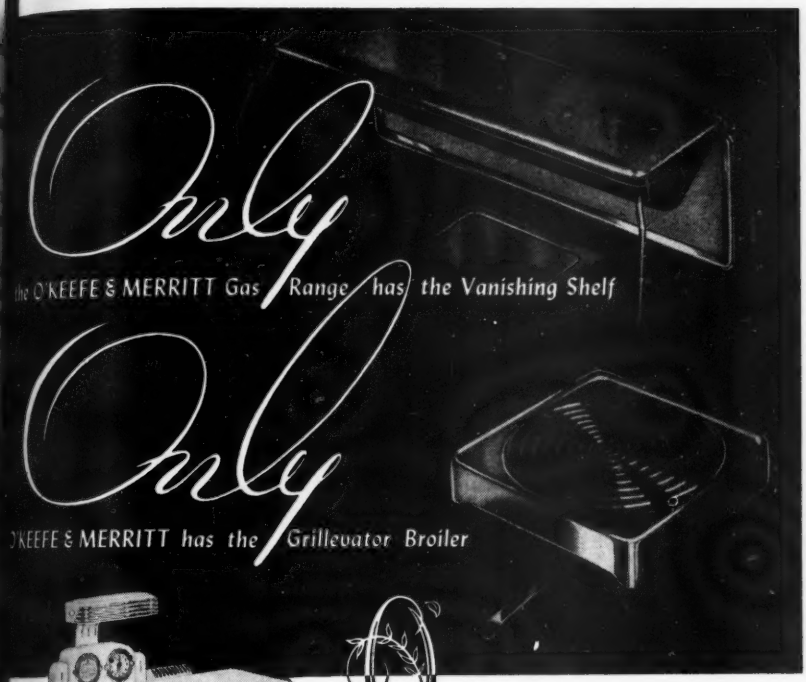
B. B. TURNER

B. B. Tur sales mana with the G American C Kokomo, Ind., the past 12 ye has been appo ed sales mana range divi The Maytag C and has est lished headqua ers at the M tag home offic Newton, Iowa. A native of Berth Colo., Mr. Turner attended the U versity of Colorado at Boulder.

The Maytag Co. recently purcha a minority interest in the Glo American Corp., and will distribute entire output of "Dutch Oven" ranges.

The Ruud Manufacturing Co., Pittsburgh, Pa., makers of water heaters, have added R. North and T. T. Smith to their gro ing list of direct-factory represen tives throughout the country.

Returning to the Ruud roster al a long session against the Japs the Pacific as a Navy PT-boat ski per, ex-Lieutenant R. M. North w

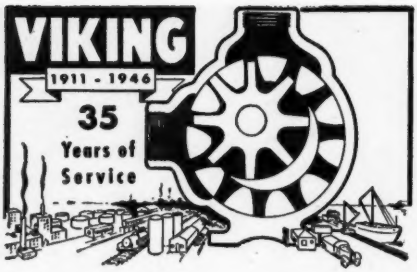


KEEFE & MERRITTS ARE EASIER TO SELL

O'Keefe & Merritt gas ranges have earned a reputation for having more extra and exclusive features. One famous feature, the Vanishing Shelf, saves so many steps! Another outstanding feature, the Grillevator Broiler, makes broiling easier than frying. Wherever they are sold throughout the West, these fine gas ranges are preferred by women who pride themselves in their cooking accomplishments. For more than a Quarter Century women have been saying: "Buying an O'Keefe & Merritt is a wise choice!"

O'KEEFE & MERRITT
3700 E. Olympic Blvd. • Los Angeles 23, California

ONE OF AMERICA'S MOST MODERN GAS RANGES



In a post War world like we are now experiencing, many things will come to pass that will mean great or small loss to a large number of companies. We are referring to new and untried products being developed by new and untried companies.

It will pay you well to remember when buying new equipment that the reliable company building reliable products will be able to help you not only in this hectic period, but will be ready to serve you in the years ahead.

Write today for Bulletin Series 46SB which illustrates and describes the complete line of Viking rotary pumps.

☆

See Our Catalog In SWEETS

VIKING Pump Company
CEDAR FALLS, IOWA

return to his pre-war Indiana te tory. He is maintaining headqu ters in Fort Wayne.

T. T. Smith, appointed represe tive for Georgia, Alabama and T nessee, will base his operations Atlanta, Ga. He comes to Ruud fr wartime service in Atlanta with Office of Price Administration.

Ruud also announces the appoi ment of Carleton R. Cummings a Gray L. Carpenter, both recently d charged naval officers, to the adv tising department.

E. I. BECKWITH

D. D. BUTTOL

Following 3½ years in the Arm Major E. Q. Beckwith has resu his duties as manager of the Produ Supply Division, Chemical Produ Department, Phillips Petroleum C Bartlesville, Okla.

Mr. Beckwith started as a Lieut. in the office of the Chief Ordnance, Washington, D. C., w later transferred to Toledo, Ohio, field service representative at t tank depot and subsequently was a pointed commanding officer of t tank depot at Lima, Ohio. At t time of his discharge he was Chi of the Production Service Branch the Cleveland Ordnance District.

Following nearly 4 years in t Army, Capt. Doyle D. Buttolph h

There's No Guesswork
in UNIVERSAL GAS RANGES

For three generations Universal Gas Ranges have eliminated all elements of chance from both dealers and customers. The dealers know that proven performance has always been a watchword. The customer knows quality and beauty are proven accomplishments.

Nor is there any guesswork in the markets that are now available. Millions of homes possessing worn-out stoves form only one part of the market, while millions of homes yet to be built offer new possibilities.

YESTERDAY—TODAY—TOMORROW—THE LEADER: UNIVERSAL GAS RANGES!

TI-36

returned to Phillips Petroleum Co. as assistant manager, Mechanical Equipment Division of the Chemical Engineering Department.

Mr. Buttolph has been in the Ordnance Department at the Aberdeen proving grounds doing research and development work on all types of combat and transport vehicles. For over 2 years he was in charge of the automotive maintenance and development shop.

George D. Wilkinson, president of **Cribben & Sexton Co.**, has announced the resignation of F. J. Hoenigmann, executive vice president and general manager.

In 1930, Mr. Hoenigmann became identified with the gas industry when he came to Cribben & Sexton Co. as sales manager. In 1940, he was made vice president and general manager.

Mr. Hoenigmann was recently elected a member of the Amer Gas Association's executive b and chairman of the associat Manufacturers' Section. He i chairman of the Gas Range Divi of GAMA.

The office boy of 1910 became president and general manager of **Butler Manufacturing Co.**, Jan. when Oscar D. Nelson stepped the presidency, succeeding E. E. N quist, one of the founders of the b ness in 1901, who was elected ch man of the board.

Both men have seen the compa expand from a sizeable concern m ufacturing steel stock tanks to one the largest steel products compa of its kind, with factories at Kan City, Galesburg and Minneapolis.

F. A. Rufi, who came with the co pany in 1909 and has been secret

Butane & Propane

Carter

Carter high quality Butane and Propane are unsurpassed as domestic and industrial fuels. Bulk loading points, St. Elmo, Illinois, Seminole and Stonewall, Oklahoma. Wholesale only. Your inquiries are solicited.

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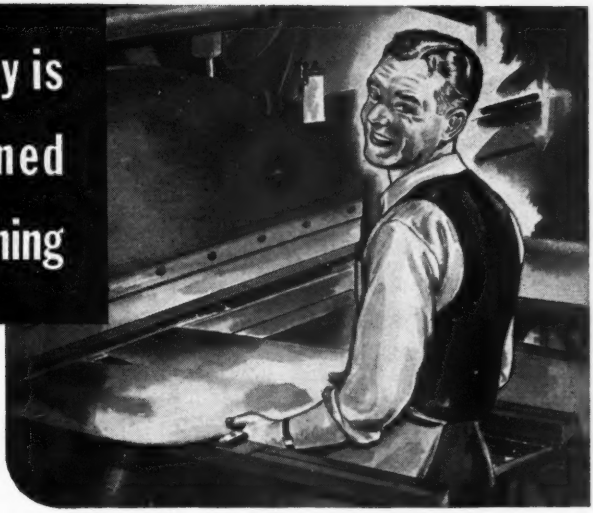
TULSA, OKLAHOMA

My Company is old-fashioned in just one thing



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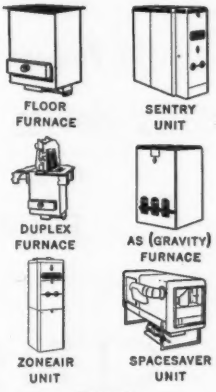
QUALITY COMES FIRST AROUND HERE!

"That's one reason our Company has grown in 30 years from a small tin shop to a major industry, known and respected coast to coast and in foreign lands. So naturally, I like to work for 'PAYNEHEAT.'"

PAYNE FURNACE COMPANY
(One of the DRESSER Industries)
BEVERLY HILLS • CALIFORNIA



PAYNE ZONE-CONDITIONING
Successor to old-fashioned central heating.
Request FREE Booklet.

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OVER 30 YEARS OF LEADERSHIP

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PROPANE

If You Are Seeking:—

1—A DEPENDABLE SOURCE
2—A UNIFORM PRODUCT
3—A CAPABLE SUPPLIER
4—AN EXPERIENCED MANUFACTURER

Then inquire—

Cities Service Oil Co.

In Propane also

CITIES SERVICE
means
GOOD SERVICE

CITIES
Service Oil Co.
(Delaware)

BARTLESVILLE, OKLA. — CHICAGO, ILL.

Other Sales Offices
Cleveland — Kansas City
St. Paul — Toronto

since 1927, has been elected tr urer. Glen C. Speakman, who been with the company since and general sales manager 1936, was elected a vice presid C. C. Crouch, in charge of advertis and sales promotion, was re-elect vice president. Roy S. Kemp, cre manager, was re-elected vice pre dent, as was John Nelson, who a was named a special representati of the company.

Darius Melcher, who joined t company in 1928, was named ma ager of the Minneapolis division the directors' meeting. In 1939 became assistant treasurer and ma ager of the Galesburg, Illinois, di sion and was elected to the boa in 1945.

A. J. KERR

A. J. Kerr, formerly general sales manager, has been elected vice president of sales of the Rockwell Manufacturing Co., Pittsburgh, Colonel Willard F. Rockwell, president, has announced.

Mr. Kerr has been associated with the company f more than 20 years. His early c reer was as district manager, Tul office of the Pittsburgh Equitab Meter and Nordstrom Valve com panies, now divisions of the Rockwe Manufacturing Co. In 1944, he wa made general sales manager.

Lew Rodauch has established manufacturers' agency under his ow name with an office at Washington D. C.

In his new set-up he will repre

Handbook
BUTANE-PROPANE GASES

Pages of Up-to-Date LP-Gas Informa-n, Charts, Diagrams and Photographs

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er 2: Properties of Butane-Propane ures.
er 3: Volume Correction Factors.
er 4: Analytical Determination and ng.

PART 3.—PRODUCTION OF LP-GAS

er 1: Natural Gasoline Plants, Recycling t, Oil Refineries.

T 4. TRANSPORTATION AND STORAGE

er 1: Delivery by Truck, Rail, Water, Pipe Line.
er 2: Storage Tank and Pressure Vessel ign.
er 3: Liquid Metering and Pumping ems.

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Chapter 5: Multiple Utility Service From a Central Plant.

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Chapter 5: Industrial Applications.
Chapter 6: Enrichment, Peak Load and Stand-by Uses.
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Section 2: Motor Carrier Regulations.
Section 3: Freight Regulations.
Section 4: Unloading Tank Cars.
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BUTANE-PROPANE *News*

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ORDER YOUR COPY TODAY

sent the Empire Stove Co. of Belleville, Ill., manufacturers of gas heating and cooking appliances, and the Columbia Malleable Casting Corp., Columbia, Pa., manufacturers of gas appliance connectors.

Publication of a new 6-page booklet, "The Hortonsphere," has been announced by the **Chicago Bridge & Iron Co.**, Chicago.

The booklet describes the reduction of evaporation losses from highly volatile liquids by storing them under pressure in Hortonspheres. The correct storage pressure required to prevent standing losses from volatile liquids can be read directly from the chart shown in this booklet.

Included is a standard capacity table showing the operating pressures available for each size. Gaging methods are described and photographs of three typical gaging units are shown.

A copy of the booklet will be se on request.

The Chicago Bridge & Iron Co. r opened its sales office in Detro Mich., on Jan. 1. It is located in th Lafayette building.

Edward D. Barrett, formerly of th Chicago office, is in charge of the De troit office.

Servel, Inc., in recognition of th expanding markets and potentia for gas appliances and equipment i both piped gas and LP-Gas fields, ha reorganized its sales department.

John K. Knighton, as manager o sales, will head the four product di visions and will coordinate all sale activities on gas appliances and equip ment. The four product division are: Household refrigerator division H. M. Wickman, sales manager; ai conditioning division, J. A. Gilbreath acting sales manager; water heate

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DEPENDABLE SERVICE

Reliance Regulators assure absolute control of steady outlet pressure to L-P gas users. They are safeguarded by a safety seal and installed with automatic control of multiple cylinder assemblies. Two-step reduction eliminates possibility of high pressures getting into appliances.

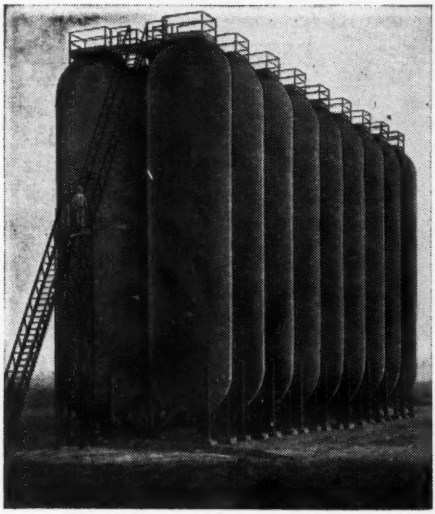
Type MC Regulator with 2" Type H Secondary Regulator. Capacity up to 6600 cu. ft. of Vapor per hour.

AMERICAN METERS

RELIANCE REGULATORS

RELIANCE REGULATOR CORPORATION
1000 MERIDIAN AVENUE, ALHAMBRA, CALIFORNIA

For the Best in LPG Storage... CONSULT GRAVER



18 bullet pressure vessels—each 12' in diameter x 54' high.

Graver ability to match the tank to the job is backed by 85 years of experience in the fabrication of steel plate.

Graver tanks for the storage of LPG are available in any size and capacity to meet your requirements. Shop-built and field-erected.

Graver X-ray and stress relieving facilities meet the latest regulations and code requirements.

Send your blueprints and specifications for prompt quotations.

GRAVER

Fabricated Steel Plate Division of

GRAVER TANK & MFG. CO., INC.

General Offices: 4811-63 Tod Ave., E. Chicago, Ind.

New York Chicago Catasauqua, Pa.
Tulsa, Okla. Philadelphia Port Arthur, Texas

division, L. M. Feigel, acting sales manager, and kitchen accessories division, N. E. Wooters, sales manager.

Because, currently, the Servel household refrigerator represents the predominant influence of Servel in the LP-Gas field, all activities as related to this industry will be coordinated by and come within the direct supervision of H. M. Wickman.

The company's personnel has been enlarged by the addition of: Lewe Sessions, dealer supervisor, Kansas City, Mo.; J. T. Mooney, dealer supervisor, Chicago, and Clayton C. Cairnes, regional supervisor, Chicago.

Gene McDonald, former manager of LP-Gas sales activities, has accepted a position of greater personal opportunity and responsibility with the company, with headquarters in Louisville, Ky.

G. F. REZNOR

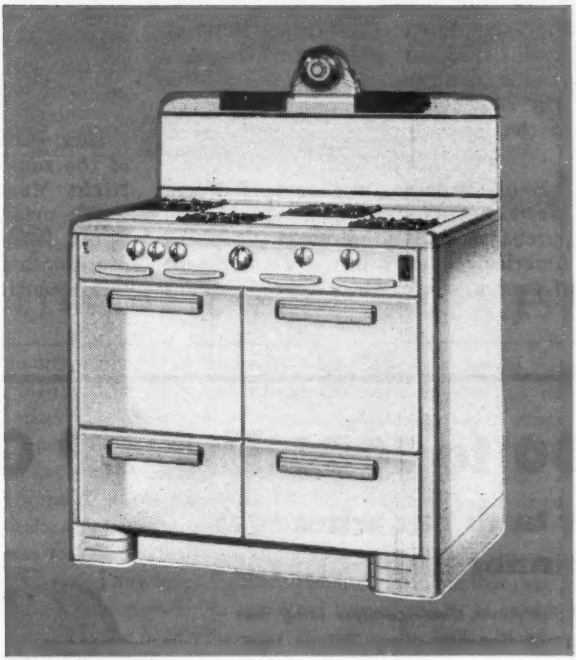
DAVE WEBSTER

G. F. (Foster) Reznor, son of the founder, succeeds the late William M. Graham as president of the Reznor Manufacturing Co., Mercer, Pa. Mr. Reznor has been with the company for 40 years and is largely responsible for the engineering and design of Reznor heaters.

Dave Webster moves up to vice president and general manager. He has been with the company since

Jewels of Cooking Performance

BY ROPER — "AMERICA'S FINEST GAS RANGE"



- "STAGGERED" COOKING TOP
- "SIMMER-SPEED" BURNERS
- LARGE "3-in-1" OVEN
- "GLO" BROILER
- "SCIENTIFIC" COOKING CHARTS

Investigate These Features

● BUILT SPECIFICALLY FOR L.P. GAS

GEO. D. ROPER CORPORATION, Rockford, Illinois.
Offices and warehouses in principal distribution centers.

1926, starting as a representative in Philadelphia, and has been sales manager since 1931.

Eugene Holland has resigned as president and director of **Florence Stove Co.**, effective Jan. 31, and R. L. Fowler, present chairman of the board, has been elected president to succeed Mr. Holland.

Mr. Fowler served as president of Florence Stove Co. from 1931 to April, 1945, at which time he was elected chairman of the board. He will continue to serve as chairman of the board.

Henri Sadacca, president of **Noma Electric Corp.**, has announced the purchase of Refrigeration Corp. of America, pioneers in the development of equipment for the frozen foods industry and manufacturers of "Frigi Freeze" home and farm freezers, frozen food lockers and air conditioning equipment.

The acquisition of Refrigeration Corporation marks the second step toward the completion of Noma's previously announced plan of expansion into the field of durable consumer goods. Noma entered the home equipment field in December with the purchase of The Estate Stove Co., Hamilton, Ohio, manufacturers of gas and electric ranges and "Heatrola" oil, gas and wood-fired space heaters.

Dick Hassinger, who covered some of the southern states for the **Day & Night Manufacturing Co**, Monrovia, Calif., prior to his admission into the Army, is back again and is now sales representative for the central and south central states. Mr. Hassinger

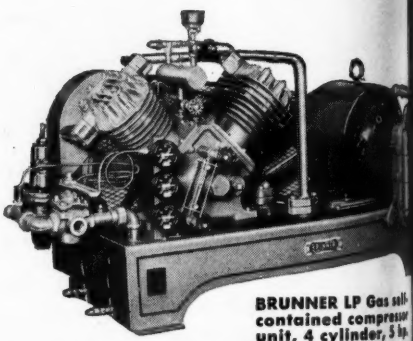
500 to 1000 lbs. LP Gas saved

per tank car wherever Brunner units operate

Liquid Petroleum Gas operators using the Brunner LP Gas Unit recover 500 to 1000 lbs. of gas from every tank car unloaded. This saving alone quickly pays for the initial cost of the Brunner self-contained unit. And because LP Gas is a necessity in many defense areas, this gas saving is important as a conservation measure.

BRUNNER MANUFACTURING CO.
UTICA 1, NEW YORK, U. S. A.

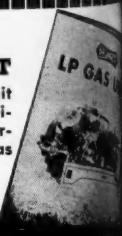
ARMY E NAVY
BRUNNER
For over 37 years the Symbol of Quality



BRUNNER LP Gas self-contained compressor unit, 4 cylinder, 5 hp.

WRITE FOR THIS NEW FREE BOOKLET

It describes the Brunner LP Gas Unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.



They Passed Their Tests...

TO ELIMINATE YOUR WORRIES!

The uncanny accuracy of Rochester LPG Gauges is due to many conti factors. Magnets, for example, are checked for magnetic flux strength a permanency. They have many times the attraction power ever needed instantly operate the pointers. Aging procedure definitely eliminates the we ones and any below standard are condemned to the scrap pile.

Such properly processed non-electric magnets never lose their permanen and therefore pointer operation remains constant.

Because the magnetic flux freely passes through the forged brass he without requiring any holes for mechanical connection, this permits a lea proof construction superior to any other known means of safely measuri volatile liquid under high pressures. Therefore, Rochester Gauges give y accuracy with a big "A" plus positive safety at all times!

ROCHESTER MANUFACTURING CO., INC.
17 Rockwood St., Rochester 10, N. Y.

ROCHESTER LPG GAUGES: Model 3120 Gauge (illustrated) fits Bastian Blessing head No. 2465 or Weatherhead Manifold No. 900 as well as pipe thread risers, 1½" or 2". Model 3121 gauge is designed for Bastian Blessing Multi-Valve head, No. 2418.

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uaranteed Accuracy

LIQUID LEVEL, TEMPERATURE AND PRESSURE GAUGE

COMPLETE DELIVERY and STORAGE EQUIPMENT

Southern Gas and Equipment can furnish everything needed in an LP-Gas distribution set-up—from the production plant to burner tip.

- TRUCK TANKS
- TRANSPORTS
- STORAGE TANKS
- PRESSURE VESSELS
- DOMESTIC SYSTEMS
- INDUSTRIAL SYSTEMS

Any equipment built or designed to your specifications or needs.

Complete lines of Gas Appliances

Gas SOUTHERN Systems

SOUTHERN GAS & EQUIPMENT CO.

Atco Building, Tulsa, Okla.

was with Patton's Third Army in the European theater of war, where he rose to the rank of major.

Alvin Flannes, who served during the war in the United States Merchant Marine, has returned to Day & Night and is representing the company in the southeastern territory. Mr. Flannes is making his headquarters in Montgomery, Ala.

W. J. FOSTER

S. W. WEILL

Two well known figures in the gas industry, W. J. Foster and S. W. Weill, have been promoted to executive positions in the **Geo. D. Roper Corp.**, manufacturer of Roper gas ranges.

Mr. Foster, who represented Roper in the Eastern states for more than 16 years, has been named vice president and general sales director for the corporation at Rockford, Ill., and Mr. Weill was appointed Eastern manager with headquarters in Philadelphia, according to S. H. Hobson, president.

Other men who have come into the Roper organization recently are: Charles W. Richardson, who will be sales representative in metropolitan New York and will work with District Manager A. F. Jenkins; R. E. MacIntosh, who will represent the company in the Boston area, working

TO ALL
NATURAL GASOLINE MEN
GREETINGS

From the

Natural Gasoline Supply Men's Association

We are looking forward to seeing you at the

TWENTY-FIFTH ANNIVERSARY CONVENTION

of the

NATURAL GASOLINE ASSOCIATION OF AMERICA

April 17-19, Baker Hotel, Dallas, Texas

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Moorlane Company
National Petroleum News
The National Supply Co.
National Tank Company
Naylor Pipe Company
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The Oil and Gas Journal
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Perry Equipment Company
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Taylor Instrument Co.
Tube Turns, Inc.
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Union Steam Pump Sales Company
Vinson Supply Company
Henry Vogt Company
Vortox Mfg. Co.
Walco Engineering & Construction Co.
Walworth Company
Wescott & Greis, Inc.
Woobank Machinery Company
World Petroleum
Worthington Pump & Machinery Corp.
Wyatt Metal & Boiler Works
John Zink Company

SEALWELD COFFEE URNS
ARE GUARANTEED
BURNOUT-PROOF

These modern load-builders eliminate leaks and burnouts

• The exclusive Sealweld process welds the seams of the urn into a permanent watertight burnout-proof seal. Urns are made of enduring stainless steel —permanently bright, easy to clean. Sealweld urns create customer good-will, help increase your LP-gas sales.

SEND FOR SEALWELD CATALOG — Gives complete specifications of single urns, twin urns and batteries.

Two-Piece Battery Sealweld Coffee Urns

*Reg. U.S. Pat. Off.

S. BLICKMAN, INC.
MANUFACTURERS OF FOOD SERVICE EQUIPMENT
2103 Gregory Ave., WEEHAWKEN, N. J.

with Mr. Weill and C. A. Hutchinson, and whose headquarters will be at 108 Arlington St. in Boston; Ben L. Landis, formerly with the War Manpower Commission, who will work with Mr. Weill in the Pittsburgh area, and J. J. Huey, who will work out of the Dallas sales office in conjunction with J. C. Mansfield, district manager of that office.

Back from the armed forces to take up their old jobs are four former members of the sales staff of the Roper Corp.

W. G. "Bud" Parks will work in his old territory of Iowa and Nebraska, and W. E. Colvin, who will work out of the Philadelphia office. J. H. Fagan, Jr., will represent Roper in Minnesota, South and North Dakota, with his headquarters in Minneapolis, and Jack Phillips will cover southern Indiana and western Kentucky, working with J. H. Busch.

A. F. Rice has been appointed **Rheem Manufacturing Co.'s** Pacific Coast manager of appliance sales, according to an announcement by Frank J. Nugent, general manager of appliance sales. Until recently, Mr. Rice had served as a major in the U. S. Engineers. He has been identified with the appliance industry in the west for more than 25 years, serving as an executive of Western Stove Co., H. R. Basford Co., Southern California Gas Co. and Occidental Stove Co.

A. F. RICE

H. W. Angell will be district manager for the central and northern Cali-

USABLE COOKING AREA on the entire top surface

Yes, you can place two 16-inch stock pots side by side on the cooking top of this Garland *without overhanging.* There's plenty of room to place two more of the same size pots behind them, and plenty of heat available to keep them cooking.

That's a lot of cooking capacity on a small amount of floor space—and for a single investment in one piece of equipment.

Such advantages come from a thorough knowledge of customer's problems and the engineering ability to solve them. They demonstrate why it's always good business to see the line of the leader first. Write now for catalog and complete information.

GARLAND Commercial Gas Range No. 45-28 CX

LEADER IN COMMERCIAL GAS COOKING EQUIPMENT

GARLAND THE TREND IS TO GAS FOR ALL COMMERCIAL COOKING

A Product of Detroit-Michigan Stove Co. · Detroit 31, Michigan

fornia and Nevada district, with headquarters in San Francisco. A. R. Jewell will be sales representative for the southwest district covering southern California, Arizona and Utah, with headquarters in Los Angeles, and F. F. Line will represent the division in Oregon, Washington, Idaho and western Montana, with headquarters in Portland.

"About six weeks after Pearl Harbor, Uncle Sam 'borrowed' Ralph H. Engstrom from us for the duration," says Robert E. Poethig, sales manager of the "Rego" division of The Bastian-Blessing Co., Chicago. "Four years later, to the day, he came back to us."

Captain Engstrom first joined the Rego sales division in 1937, coming direct from the University of Illinois as a graduate chemical engineer and a reserve officer in the field
tillery.

The Bastian-Blessing Co. has
pointed George R. Postlewait dist
sales manager of its Rego LP-
division for the North Central te
tory. Mr. Postlewait is making
headquarters in Cleveland, and
territory consists of Ohio, Kentuc
and parts of West Virginia, Penns
vania, Illinois and Indiana.

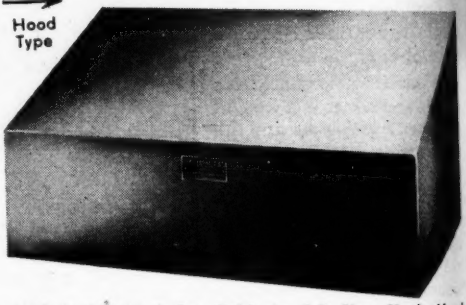
Mrs. Pauline Treisch, former ho
service director for the Mansfi
district of the Ohio Fuel Gas Co., h
been named director of home serv
for the Tappan Stove Co., it has b
announced.

She succeeds Miss Florence W
decker, who resigned to enter anot
field of work.

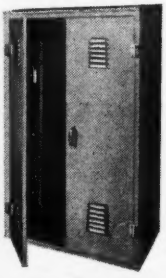
A graduate of Ohio State univ
sity, Mrs Treisch taught home e

OXFORD Bottled Gas CABINETS

Made in three styles — Single Hood, Dual Hood and Full Size. Sturdily constructed of heavy metal with protective coating of paint or galvanized to insure rust resistance. Write for prices and detail.



Hood Type



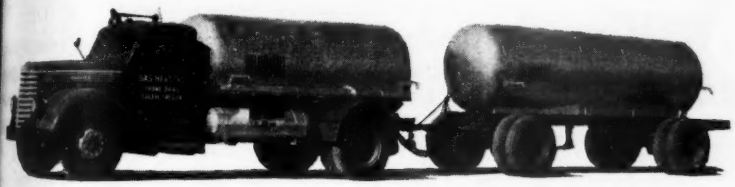
Full Size Cabinet

Thousands of Oxford Bottled Gas Cabinets, Full Size, Single Hood and Dual Hood Types, are in use in many parts of the country giving satisfactory service over many years.

Liquid Propane Vaporizer

Insures vaporized gas in any degree of cold weather. Outstanding superiority is that it is installed OUTSIDE the tank—always accessible. Write for details and prices.

The Oxford Company • **Oxford, Penna**



PROPANE TRANSPORT

Typical Propane Transport Unit built for Gas Heat Inc. of Salem, Oregon. For information concerning transport units or delivery units of any size, using either cylindrical or spherical tanks,

Call or Write

SUPERIOR TANK & CONSTRUCTION CO.

6155 So. Eastern Ave. AN. 4157 Los Angeles, California

Hidden Ingredients

IN EVERY SHIPMENT OF SINCLAIR LP-GASES

SINCLAIR "Integrity", "Reputation" and "Personal Service" are "hidden ingredients" which come to you in every shipment of SINCLAIR LP-GASES. These make the name SINCLAIR mean more to its dealers.

The test of a source of supply is in the way it takes care of its customers' requirements during the season of peak consumption. SINCLAIR'S planned production fills the orders of its dealers with regularity. Plan your propane purchases with SINCLAIR now.

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LIQUEFIED PETROLEUM GAS DIVISION

Williams Vented
WALL WARMOLATOR

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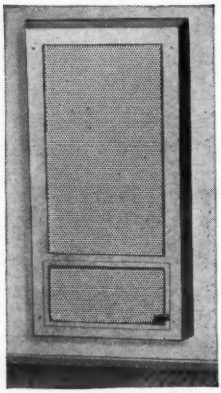
For Butane, Propane or Natural Gas.



Dual type. 45,000 B.T.U. input. Color, light Ivory. Automatic Temperature control with Wall Thermostat, or for manual control with pilot lighter. Easily installed. Working parts easily accessible. For 2 x 4 inch studs. No pit or basement. Approved by A.G.A. Eligible for F.H.A. loans.
Size of face, 25¼" wide, 50" high.
Size of recess in wall, 23¾"x 48" high.

Also made in Single type.
Ask for circular, form 211.

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Factory: 1821 Flower Street
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nomics at Glenford, O., high s before starting with the Ohio Gas Co., where she was engage home service activities for 10 y

She is a member of the Amer Home Economics Association and recently named a member of American Gas Association home ice committee.

Further expansion of Tapp sales organization has been nounced with the appointment Major Paul I. Berno as develop manager. Major Berno was rece placed on inactive status follow three years and seven months' s ice with the Army's Quartermas Corps.

Three veterans are included on list of new sales representati They include: G. E. Connally, signed to Philadelphia; John Laren, Georgia, Florida and Alaba and E. H. Jelliff, southern Indiana

Other Tappan sales representati and territories they will cover a A. J. Bradley, Michigan; A. Probst, Pittsburgh; J. F. Loef New England, and R. C. Smith, N Jersey.

The appointment of Edgar P. H lister as manager of the New Yo factory branch was recently nounced by J. F. Ray, director sales, **General Controls Co.**, Glend Calif.

Mr. Hollister will devote his ent time to serving users of automa pressure, temperature and flow co trols in New York State, New Jer and Connecticut.

Ralph Beisner and George Hu are now co-owners and operators the **Lincoln Manufacturing Co.**, cated at 8680 Otis St., South Ga Calif.

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